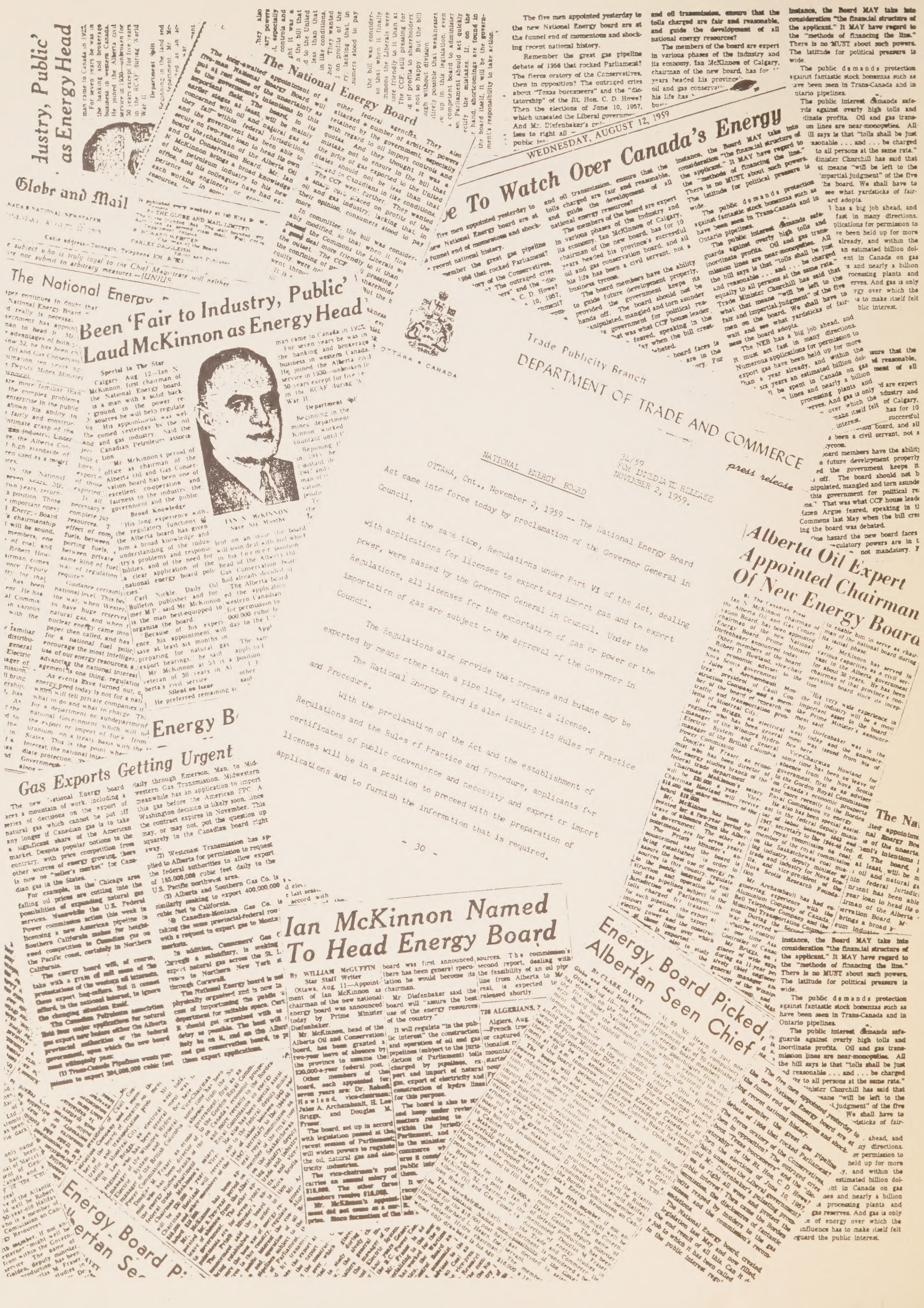
CANADA

National Energy Board

Twenty-five Years in the Public Interest



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NOVEMBER 2, 1959.

NATIONAL ENERGY BOARD

OTTAWA, Ont., November 2, 1959 -- The National Energy Board Act came into force today by proclamation of the Governor General in Council.

At the same time, Regulations under Part VI of the Act, dealing with applications for licenses to export and import gas and to export power, were passed by the Governor General in Council. Under the Regulations, all licenses for the exportation of gas or power or the importation of gas are subject to the approval of the Governor in Council.

The Regulations also provide that propane and butane may be exported by means other than a pipe line, without a license.

The National Energy Board is also issuing its Rules of Practice and Procedure.

With the proclamation of the Act and the establishment of Regulations and the Rules of Practice and Procedure, applicants for certificates of public convenience and necessity and export or import licenses will be in a position to proceed with the preparation of applications and to furnish the information that is required.

- 30 -

The five men appointed yesterday to the new National Energy board are at the funnel end of momentous and shocking recent national history.

Remember the great gas pipeline debate of 1956 that rocked Parliament? The fierce oratory of the Conservatives, then in opposition? The outraged cries about "Texas buccaneers" and the "dictatorship" of the Rt. Hon. C. D. Howe? Then the elections of June 10, 1957, which unseated the Liberal government?

and oil transmission, ensure that the tolls charged are fair and reasonable, and guide the development of all national energy resources?

The members of the board are expert in various phases of the industry and its economy. Ian McKinnon of Calgary, chairman of the new board, has for 10 years headed his province's oil and gas conservation board.

instance, the Board MAY take into consideration "the financial structure of the applicant." It MAY have regard to the "methods of financing the line." There is no MUST about such powers. The latitude for political pressure is wide.

The public demands protection against fantastic stock bonanzas such as have been seen in Trans-Canada and in Ontario pipelines.

The public interest demands safeguards against overly high tolls and inordinate profits. Oil and gas transmission lines are near-monopolies. All the bill says is that "tolls shall be just and reasonable . . . and . . . be charged equally to all persons at the same rate."

National Energy Board

Twenty-five Years in the Public Interest

This 25-year booklet commemorates the silver anniversary of the creation of the National Energy Board. The National Energy Board Act, under which the Board operates and which establishes the organisation's mandate, was proclaimed on 2 November 1959.

It is our sincere hope that the public we serve and the industry we regulate will find this publication interesting and useful.

CONTENTS

Chairman's Message 1
The Board Members 5
History of the Board 13
Electrical Interconnections
Canada — U.S.A. 41
Former Board Members 45
Temporary Board Members 51
Reminiscences 53
- Early Days by Douglas M. Fraser 53
- My Four Years by Marshall A. Crowe 59
- Fifteen Years at the Board by Jack G. Stabback 60
- The Electrical Beginnings by H. Lee Briggs 61
- Congratulations by Robert D. Howland 64
- From Secretary to Member by Robert A. Stead 64

Secretaries of the Board 67
The Directors 69
The Board at Play 71

The National Energy Board is an independent federal agency that was created by an Act of Parliament in 1959. The Board's regulatory powers under the National Energy Board Act include the licensing of the export of oil, gas and electricity, the issuance of certificates of public convenience and necessity for interprovincial and international pipelines and international power lines, and the setting of just and reasonable tolls for pipelines under federal jurisdiction. The Act also requires that the Board keep under review the outlook for Canadian supply of all major energy commodities, including electricity, oil and natural gas and their by-products, and the demand for Canadian energy in Canada and abroad.

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National Energy Board
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The Chairman's Message

Looking back over a period of 25 years since its beginning in 1959, I think it can be fairly said that the National Energy Board has stood the test of time.

The impetus for the formal creation of the Board was provided by the parliamentary turmoil in 1956 over the proposed building of the TransCanada pipeline and the subsequent recommendations of the Gordon and Borden Royal Commissions. But as Douglas Fraser, one of the charter members, points out in his own reflections, the establishment of the Board was a natural progression of regulatory developments stretching back to the early 1900s.

What was new was the fact that for the first time an independent tribunal had been created to provide advice to the federal government on certain major energy matters based on the evidence put before its members at public hearings conducted in the nature of a court. These included the issuance of certificates of public convenience and necessity covering the construction and operation of interprovincial and international pipelines and of international power lines, and the licensing of the export and import of natural gas and electricity (and subsequently of crude oil and petroleum products). In addition, the Board was empowered on its own authority to regulate the tolls and tariffs of pipelines under its jurisdiction, which the Minister sponsoring the founding legislation considered might become one of the Board's most important functions.

Quite apart from these regulatory responsibilities was the obligation imposed on the Board to serve as a source of expert advice and information to the government on energy questions both privately and through published reports based on studies undertaken at the specific request of the responsible minister or on the initiative of the Board itself.

Over the years, these regulatory and advisory functions of the Board have remained intact, although they have to some degree been revised and modified. The Board's regulatory role, for example, has been extended through the responsibilities assigned to it under other legislation such as the Energy Administration Act (previously the Petroleum Administration Act) and the Northern Pipeline Act. The Board's responsibilities have also been expanded through amendments to its own Act, such as those extending the rights of property owners with respect to the routing of pipelines and power lines under NEB jurisdiction. By proclamation, the Governor in Council may invoke new provisions authorizing the Board to regulate interprovincial power lines in certain circumstances. Only this year the federal government directed the Board to advise the Minister of Indian and Northern Affairs on the rates to be charged by the Crown-owned Northern Canada Power Commission.

At the time the Bill establishing the Board was under debate in the House of Commons, there was considerable criticism from the Opposition over the provision under which decisions by the Board recommending the issuance of certificates for the construction of major pipeline or electrical transmission facilities and licences for the export or import of natural gas and electricity were subject to the approval of the Governor in Council.

This procedure struck a balance under which the government of the day could not act on any application for a certificate or licence rejected by the Board except through the approval by Parliament of separate legislation, while at the same time the government was free to refuse concurrence in the issuance of certificates or licences recommended by the Board if it concluded that it would be contrary to the public interest.

In retrospect, it would appear that this balance has served reasonably well. No Ministry that has followed the government that established the procedure has proposed to change this balance, and it has come to be widely accepted. In considering the applications for certificates and licences put before it, the overriding criterion applied by the Board in keeping with the provisions of the NEB Act is the public interest. The fact that no recommendations by the Board on such regulatory matters have ever been rejected by the government of the day is one measure of the Board's success in fulfilling its mandate. In the case of tolls and tariffs, which are not subject to government scrutiny, the Board's overriding concern is whether they are "just and reasonable". It is, I think, a further measure of success that very few judicial challenges to the Board's decisions involving certificates, licences or tolls and tariffs have been upheld by the courts.

In its early years, the Board was heavily engaged as an advisor to the federal government on a wide variety of energy matters; indeed, in many areas it was the only available source of advice. Very soon after it opened its doors, the Board found itself deeply immersed in providing the government with advice and information related to the formulation of the National Oil Policy, which was introduced in 1961, and subsequently it was also extensively involved in overseeing its implementation. Far-reaching studies undertaken by the Board led the newly-elected Liberal government in 1963 to adopt a new National Power Policy, which proposed to ease restrictions on the export of electricity as a means of promoting the development of remote hydroelectric power sites.

With the establishment of the Department of Energy, Mines and Resources in October 1966, which, among other things, was to serve as a major source of advice to the government with respect to many energy matters, the Board's advisory role necessarily became more constricted. The Board has, nevertheless, remained extensively engaged in an advisory role with respect to important policy considerations in those areas in which it has specialized knowledge—such as oil and gas

exports or imports. Similarly, the Board was asked by the government to advise it on matters beyond its normal regulatory jurisdiction involved in the proposed Arctic Pilot Project.

While the parameters of the Board's regulatory role have grown only moderately over the past quarter-century, there has nevertheless been a massive increase in the extent of the Board's regulatory responsibilities as a result of many factors. These include the substantial growth of interprovincial and international oil and gas pipelines and of international power lines that are subject to regulation by the Board with respect to their construction and operation. In the case of oil and gas pipelines, a similar consideration applies with respect to the regulation of their tolls and tariffs.

The growing scale and complexity of many projects and their location in remote and often harsh environments of the onshore and offshore areas of the frontier often raise major new issues for consideration with respect to potential socio-economic and environmental impacts and technological challenges.

The basic principles originally developed by the Board in determining whether and at what price gas and later oil exports would be authorized remain as valid today as when they were first put in place. Their practical application has become, however, more complex and difficult as a result of the upheavals that have been taking place in both international and national oil and gas markets over the past decade.

Although, as I noted earlier, the scope of the Board's regulatory role has not significantly changed, the new or expanded jurisdiction given to other federal, provincial and territorial departments and agencies has resulted in a vast proliferation of regulatory controls in the field of energy. While we have been working to put our own house in order by simplifying and clarifying our own regulatory requirements, we have also been seeking to encourage greater coordination of the activities of other players and, where possible, the elimination of duplicated or overlapping regulatory requirements.

In casting back over the past 25 years, it is easy to overlook one rather remarkable feature of the organization—the smooth and harmonious functioning of the Board itself. As a quasi-judicial body, the members of the Board have been required to perform as a collegial body. Originally there were only five members and now there are eleven actively engaged in the business of the agency. While over the years the members have come from widely different backgrounds in terms of geography, training and experience, both the Board as a whole and its constituent panels have displayed a remarkable ability to reach decisions by consensus.

I am perfectly certain there will be no dissent from any member past or present when I say that the Board owes a very great deal for any measure of success it has enjoyed to the commitment, hard work and

skill of its staff. From the beginning, staff members were drawn from a wide area of professional training and experience, and this has always been part of its very considerable strength. In recent years, the range of skills available on the staff has become even broader so as to enable the Board to deal effectively with the new socio-economic, environmental and technical issues presented by many of today's major energy projects—particularly those on the frontier.

If there is one lesson that emerges from the experience of the past quarter-century, it is that the course of future events is shrouded in uncertainty. There is, however, one thing about which I am reasonably confident, based on past experience, and that is the ability of the Board to respond to whatever challenges lie ahead.

May it continue to serve long and well!

C. Geoffrey Edge

The Board Members

The Board as constituted today consists of 11 members resident in the National Capital Region. Each member is appointed by the Governor in Council for a term of seven years, and at the end of the term may be reappointed. The members are drawn from several professions, many geographical regions and varied backgrounds.

One member is designated by the Governor in Council to be the Chairman of the Board, one the Vice-Chairman and three Associate Vice-Chairmen.

One member is stationed in Calgary, where he serves as the Board's Designated Officer with the Northern Pipeline Agency. During his term in this position, the Board's complement of 11 members in the National Capital Region is maintained by the appointment of a temporary substitute member.

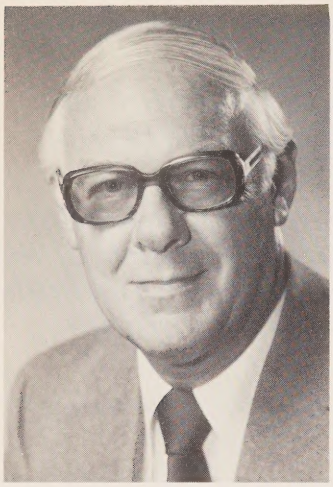
Outlines follow on the backgrounds and experience of the present 12 members.

C. GEOFFREY EDGE

Mr. Edge is Chairman of the National Energy Board. He was appointed a member of the Board in 1971 and designated Associate Vice-Chairman in 1975, Vice-Chairman in 1978, and Chairman in November 1980.

Mr. Edge was born in England in 1920 and holds a Bachelor of Science honours degree in economics from the University of London. After an appointment in the British civil service, he served in the British army as an officer of the Royal Artillery from 1939 to 1946. In 1951, he came to Canada and was employed in a senior capacity with a number of Canadian companies, including Chemcell Limited.

Mr. Edge is a fellow of the Royal Statistical Society, a fellow of the Institute of Statisticians, a Registered Industrial Accountant, and a fellow of the Society of Management Accountants of Canada. He is the author of several books, articles and papers on operations research, accounting and computer subjects.



RALPH F. BROOKS

Mr. Brooks is Vice-Chairman of the Board. He joined the Board in 1968 as Assistant Chief Engineer (Electric Power) and in 1972 he was made Director General, Planning. He was appointed a member of the Board in 1973 and was designated Associate Vice-Chairman in 1978 and Vice-Chairman in 1980.

Mr. Brooks was born in Saint John, New Brunswick, in 1925 and holds a Bachelor of Science degree in electrical engineering from the University of New Brunswick. Prior to joining the Board, Mr. Brooks was employed for more than 20 years in engineering and management positions with various electric power companies, including Shawinigan Water and Power Company, Niagara Mohawk Power Corporation, and later with consulting firms: Shawinigan Engineering Company and Teshmont Consultants Limited.

Mr. Brooks is a member of the Association of Professional Engineers of Ontario and of the Canadian National Committee of the World Energy Conference.

LIVIA M. THUR

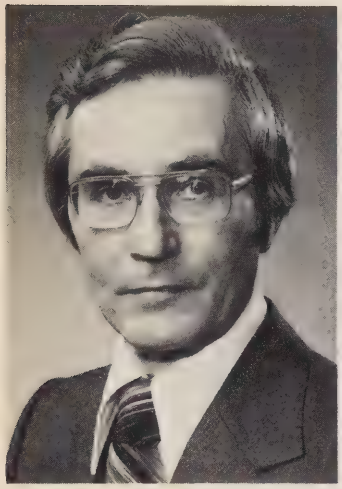
Mrs. Thur was appointed a member of the Board and designated Associate Vice-Chairman in March 1977.

Born in Hungary in 1928, she left that country in 1952 to attend the University of Louvain in Belgium. There she obtained a Doctorate in law, a Master of Arts in political science, and a Master of Arts in economics.

Following her arrival in Canada in 1959, Mrs. Thur served as Assistant Professor and Associate Professor at the University of Montreal (1959-1970); as Vice-Principal Academic at the University of Quebec in Trois-Rivières (1970-1975); and as Senior Assistant Secretary with the Ministry of State for Science and Technology (1975-1977).

Before entering the Public Service of Canada, Mrs. Thur was Member, Board and Executive Committee, University of Montreal; Member, Superior Council of Education of Quebec; Member, Science Council of Canada; President, elected, French Canadian Association for the Advancement of Sciences 1974-1975. She was also a Director of Bell Canada, the Canada Development Corporation, Sidbec and Sidbec-Dosco Ltd.

She received an Honorary Doctorate from Laval University in June 1981.



WILLIAM A. SCOTLAND

Mr. Scotland was appointed a member of the Board in 1974 and designated Associate Vice-Chairman in 1978. In May 1978, he was appointed the Designated Officer and Deputy Administrator with the Northern Pipeline Agency, which was established by Parliament to oversee the planning and construction in Canada of the Alaska Highway Gas Pipeline.

Mr. Scotland was born in Calgary in 1928 and graduated from the University of Alberta in 1950 with a Bachelor of Science degree in chemical engineering. After graduation, he joined the Athabasca Oil Sands Project as project engineer. From 1953 to 1960, he was employed as field engineer and chief reservoir engineer by Texaco Exploration Company.

Mr. Scotland joined the Board in 1960 as assistant Chief Engineer for oil and gas. In 1968, he became Chief Engineer of the Board.

In 1972, he joined Energy, Mines and Resources Canada as Senior Advisor on U.S.-Canada oil and gas relations.

JACQUES FARMER

Mr. Farmer was appointed a member of the Board in 1974 and designated Associate Vice-Chairman in November 1980.

Born in Montreal in 1923, he holds a Bachelor of Arts and a Bachelor of Applied Sciences degree from the University of Montreal. He pursued further studies in industrial relations, business administration, and accounting at various institutions, including McGill University and the University of Michigan.

Mr. Farmer in 1949 joined Hydro-Québec, where he held several positions as engineer. In 1957, he joined the Québec Natural Gas Corporation, which later became Gaz Métropolitain, and served in various senior capacities, ultimately becoming Vice-President, Gas Supply.

Mr. Farmer is a member of the Order of Engineers for Quebec.

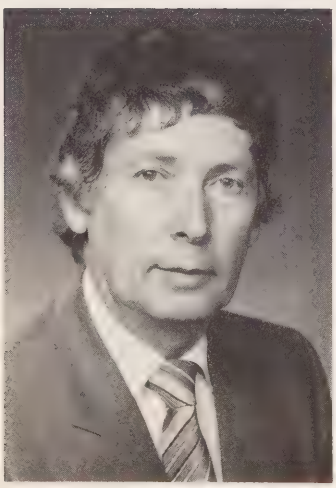
A. DIGBY HUNT

Mr. Hunt was appointed a member of the Board and designated Associate Vice-Chairman in August 1982.

He was born in England in 1927 and graduated from the University of London with an honours degree in geology. He came to Canada in 1952 following four years as an oil company geologist in South America. Between then and 1960, he held a number of positions with various petroleum companies in Calgary and also as a petroleum consultant.

Mr. Hunt joined the federal government in 1960 and served in senior positions in the Departments of Indian Affairs and Northern Development, and Energy, Mines and Resources, where his last appointment was as Assistant Deputy Minister, Petroleum Prices and Compensation.

He is a fellow of the Institute of Petroleum of London and a member of the Geological Society of London, the Association of Professional Engineers, Geologists and Geophysicists of Alberta, the American Association of Petroleum Geologists, the Canadian Institute of Mining and Metallurgy and the Geologists' Association of London.



JOHN R. JENKINS

Mr. Jenkins was appointed a member of the Board in November 1980.

Mr. Jenkins was born in Medicine Hat, Alberta, in 1931 and graduated from the University of Alberta with a Bachelor of Science degree in chemical engineering. He was first employed with the Alberta Energy Resources Conservation Board as a gas engineer and field engineer.

He joined the NEB in 1959 as an Oil and Gas Engineer, became Assistant Chief Engineer in 1969, Director of the Engineering Branch in 1972, Director General, Planning in 1975, and was appointed a temporary substitute member in 1978 under the provisions of the Northern Pipeline Act.

Mr. Jenkins is a member of the Ontario Association of Professional Engineers.

JOHN R. HARDIE

Mr. Hardie was appointed a member of the Board in March 1979.

Born in Calgary in 1919, he obtained a Chartered Accountants degree in 1942. After the war, during which he served as a lieutenant and captain in the army, he became a partner in William F. Reid & Company, Chartered Accountants.

In 1949, Mr. Hardie joined the Canadian Gulf Oil Company and held various positions: Manager of Accounting, Manager of Taxation, Director of Accounting and Taxation, and Manager—Corporate Planning and Economics. In 1976, he joined the Canadian Arctic Gas Study Limited as Comptroller, and in 1978 he was employed as Controller by Loram International Limited.

Mr. Hardie is a life member of the Institute of Chartered Accountants of Alberta.

JACQUES L. TRUDEL

Mr. Trudel was appointed a member of the Board in March 1979.

Mr. Trudel was born in Montreal in 1919 and attended Montreal College and Elie Commercial College. He was a member of the Royal Canadian Mounted Police for five years and the regional sales manager for a leading national food products manufacturer for 19 years.

Mr. Trudel was elected to the House of Commons in 1968 and was re-elected in 1972 and 1974. During this period, he served as Chairman of the Finance, Trade and Economic Affairs Committee and Chairman of the Quebec Caucus of the Liberal Party. In 1975, Mr. Trudel was appointed Parliamentary Secretary to the Minister of Finance and, in 1976, Parliamentary Secretary to the President of the Treasury Board.

R. BYRON HORNER, Q.C.

Mr. Horner was appointed a member of the Board in May 1979.

He was born in Saskatchewan in 1929 and obtained a Bachelor of Law degree from the University of Saskatchewan in 1953. He was admitted to the Saskatchewan Bar in 1955 and the Alberta Bar in 1974.

After practising law for one year at Blaine Lake, Saskatchewan, Mr. Horner was employed by Canadian Gulf Oil Company in 1956. In 1965, he was appointed Official Guardian and Registrar in Bankruptcy for the Province of Saskatchewan. From 1967 to 1979, he was the Chairman of the Saskatchewan Securities Commission. He was also a member of the Regina Public School Board of Trustees from 1974 to 1979 and served as Chairman of the Board in 1978. He was elected President of the Saskatchewan School of Trustees Association in 1978.

Mr. Horner was appointed Queen's Counsel by the federal government in December 1981.

A. BOYD GILMOUR

Mr. Gilmour was appointed a temporary substitute member of the Board in November 1980 under the provisions of the Northern Pipeline Act.

Mr. Gilmour was born in Scotland in 1932 and obtained a Master of Arts degree from Glasgow University in 1954. Upon coming to Canada, he was employed by Imperial Oil Limited from 1954 to 1959 as an analyst in its Transportation and Supply Department and by TransCanada PipeLines from 1959 to 1967 as Supervisor, Statistics.

Mr. Gilmour joined the Economics Branch of the Board in 1967, becoming Director of that Branch in 1973. In 1974, he was appointed Director General, Operations.

WILLIAM G. STEWART

Mr. Stewart was appointed a member of the Board in March 1983.

Born in Ottawa in 1928, he graduated from the University of Western Ontario in 1951 with a Bachelor of Arts degree in business administration. He received his Chartered Accountants degree in 1954.

Mr. Stewart in 1955 joined Union Gas Limited, where he held several senior appointments, and was President from 1974 to 1979. While with Union Gas, he served as an Officer and Director of several subsidiary companies. From 1980 to 1983, he was Senior Advisor, Corporate Affairs with Richardson Greenshields of Canada.

Mr. Stewart is a member of the Canadian Institute of Chartered Accountants; the Advisory Committee, School of Business Administration, University of Western Ontario; the Advisory Committee on Regulated Industries, Management Institute, McGill University; and the Board of Directors of the Victorian Order of Nurses for Canada.

LOOKING BACK OVER A QUARTER-CENTURY

History of the Board

GENESIS

Out of the fiery crucible of parliamentary debate over building of the Trans-Canada Pipe Line that shook the Canadian nation for one turbulent month in mid-1956, and contributed a year later to the downfall of the Liberal government, there emerged in 1959 the National Energy Board.

While these series of events are closely linked in fading memories of those distant days, in fact the upheaval that surrounded the Trans-Canada project was more of a catalyst than a cause for the subsequent establishment of the Board.

In retrospect, it is apparent that it was an idea whose time had already come. Well before the building of the pipeline had become a controversial question, some leading Conservative Members had begun to advocate the creation of a national agency to regulate energy in Canada. Even within the bureaucracy, the idea had its attractions. At the time he was Associate Deputy Minister in the Department of Trade and Commerce, the Hon. Mitchell Sharp suggested the establishment of some form of national energy body to his Minister, the Rt. Hon. C.D. Howe. "What in hell," snapped Howe, "would such an agency do that I don't do already?" The question, needless to say, was rhetorical.

No image of modern industrial man can convey much sense of his economic state and possibilities that does not give a prominent place to those forms of energy on which his powers depend. They are the orb and sceptre that more than anything else represent the degree of his sovereignty over nature.

***Final Report**, Royal Commission on Canada's Economic Prospects, November 1957.*

Prior to the 1957 general election, the then-leader of the Conservative Party, John Diefenbaker, publicly called for the establishment of a national authority to regulate energy. Within a few months after becoming Prime Minister, his new Conservative government established a Royal Commission on Energy under the chairmanship of Henry Borden, the head of what was then known as Brazilian Traction. One of the specific terms of reference called on the Commission to advise the government not just whether it should be established, but "the extent of authority that might best be conferred on a National Energy Board" with respect to energy matters.

In its final report of November 1957—well before the submission of the first report of the Borden Commission—the Gordon Royal Commission on Canada's Economic Prospects recommended the creation of a "national energy authority" to advise the government on broad energy matters and to regulate the export of oil, gas and electricity. The proposal was endorsed by a Liberal Party Convention in January 1958.

The first report of the Borden Commission, which was published on October 27, 1958—the very day that gas began flowing to Toronto and Montreal through the 2,200-mile TransCanada pipeline, fully endorsed the establishment of a National Energy Board. As the Liberal spokesmen took some pleasure in pointing out, however, the legislation subsequently introduced in the House of Commons in May 1959, by the Hon. Gordon Churchill, Minister of Trade and Commerce, rejected a number of the major recommendations of the Borden Commission.

The report, for example, proposed that the Board of Transport Commissioners should retain authority to regulate the design and construction of oil and gas pipelines under federal jurisdiction and be given broader powers to regulate their tolls and tariffs, while the National Energy Board would certificate their construction. The government's Bill, C-49, provided for the transfer from the Board of Transport Commissioners to the National Energy Board of virtually all authority with respect to pipelines. The

legislation did not incorporate the Commission's proposal that the Board be given authority to regulate all interprovincial flows of oil and gas, and proposed that the government retain stand-by authority only to authorize the Board to regulate imports of crude oil and products if considered necessary at some future date.

The Minister, speaking on second reading of the Bill, himself acknowledged that many of the regulatory powers being conferred on the Board were very similar to those then exercised under the Pipelines Act (by the Board of Transport Commissioners) and the Exportation of Power and Fluids and Importation of Gas Act (by the Minister of Trade and Commerce). These included authority to license imports of natural gas and exports of gas and electricity and to certificate the building of interprovincial and international pipelines.

"What is new is important," Mr. Churchill told the House, "but not extensive." What was new included the independent status occupied by the Board as a court of record, the requirement that it conduct public hearings on all major issues coming before it, the restriction imposed on the government in acting on matters that did not have the prior approval of the NEB, and the broad advisory role the Board was expected to fulfill with respect to a wide array of energy matters.

In addition to the above responsibilities, the Bill also proposed to empower the Board to exercise responsibility with

Most of the major oil pipeline systems in Canada were started in the 1950s following important discoveries of oil in Alberta. By far the biggest and most sustained expansion has been on the Interprovincial line which has expanded from Redwater, Alberta to Sarnia (1953), Toronto (1957) and Montreal (1976). The system now consists of roughly 10 000 km (6,100 mi) of oil pipeline.

The TransCanada pipeline started in 1956 as the longest pipelining project on the globe and probably still remains the biggest pipeline network in the free world. Excluding the Great Lakes Transmission line, which fully loops the TransCanada facilities between Manitoba and Southern Ontario through an American route, the TransCanada system totals today roughly 10 600 km (6,600 mi) of pipeline.

respect to the regulation of the tolls and tariffs of all new pipelines that came under federal jurisdiction and to assume responsibility on its own initiative for the tolls and tariffs of federal pipelines in operation before the Board was established. "The part of the Bill which has to do with traffic, tolls and tariffs lies at the heart of the legislation and is perhaps the most important single new feature," the Minister told the House.

During the course of the extensive debate on second reading of the Bill, the Liberal Party supported the legislation in principle, but objected particularly to the power that would be retained by the government over the issuance of certificates for the construction of facilities and licences for such purposes as the export of gas and electricity. The CCF Party, predecessor to the NDP, was even stronger in its opposition on this score. The then CCF leader, Hazen Argue (who subsequently became a Senator and member of the Liberal government) complained that the Bill made "the Governor in Council the master" and the proposed National Energy Board "the plaything of the government".

The roll-call vote on second reading called on May 5, 1959, was 179 for the Bill, with 7 CCF members opposed. Following a number of detailed changes to the legislation during consideration in Committee of the Whole House, the legislation was given third reading by the Commons without division on June 3 and received Royal Assent on July 18, 1959.

The five charter members of the Board were appointed on July 10 of the same year under the authority of the Interpretation Act to begin preparing for the time when the Board would come into existence. Those members were Ian McKinnon, Chairman, Dr. Robert Howland, Vice-Chairman, H.L. Briggs, Douglas Fraser and Jules Archambault (who subsequently resigned and was replaced the following year by Maurice Royer). By proclamation, the National Energy Board Act came into force on November 2, 1959, and the Board the same day officially opened its doors for business.

THE FORMATIVE YEARS—1959-1973

Located in the beginning in what was essentially an apartment building at the corner of Bronson and Holmwood Avenues in Ottawa, the Board initially lacked any space of its own in which to conduct public hearings and was compelled to borrow facilities from the Board of Transport Commissioners and the Dominion Bureau of Statistics.

The Board began life with plans for a staff of 50, but in the two months to the end of the calendar year it had just 20 employees, only 4 of whom were professionals. Notwithstanding staffing problems, the Board had in place at the outset its first set of Rules of Practice and Procedure and of regulations under Part VI of the Act with respect to licensing of exports and imports. It had the beginnings of a library service in place, established a system of records which encompassed those taken over from the Board of Transport Commissioners and the Department of Trade and Commerce involving functions assumed by the NEB, and began to establish a uniform system of accounts.

In addition to all of these undertakings, the Board found itself compelled to prepare for hearings early in the new year on an accumulated backlog of applications for export licences and certificates covering new facilities with respect to natural gas. At the same time, the Board also entered into arrangements to launch a study into Canada's energy requirements in cooperation with the Department of Trade and Commerce and the Department of Mines and Technical Surveys.

The First Omnibus Gas Exports Hearing

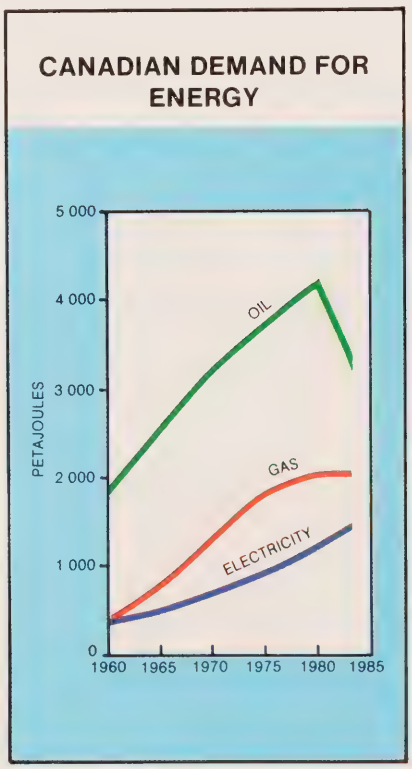
There was no opportunity for the Board to ease itself gradually into its new tasks. By early January 1960, it had begun omnibus hearings on six applications for licences to export gas and four applications for certificates authorizing the construction of new gas pipeline facilities. In all, the applications involved the export over some 20 to 25 years of around 6.8 exajoules (6.5 trillion cubic feet [tcf]), which was far in excess of the relatively small

volume previously authorized for export by the Board of Transport Commissioners (primarily by Westcoast Transmission). Apart from the magnitude of the total amount of gas proposed for export, the hearings also attracted considerable attention because one of the proposed exports involved the sale of gas south of the border by TransCanada PipeLines (as it has since come to be known) at Emerson, Manitoba. At the time he was Minister of Trade and Commerce, Mr. Howe had indicated his readiness to authorize the export by TransCanada of some 5.6 million cubic metres (200 million cubic feet) per day as a means of facilitating the financing of the pipeline project in Canada. That authorization was subsequently withdrawn by the new Conservative government on the recommendation of the Borden Commission and the whole question referred to the National Energy Board for its consideration.

National Oil and Power Policies

In the first Reasons for Decision issued with respect to such matters, the Board concluded, on the basis of already established reserves and the trend of new discoveries, that there were more than ample supplies of natural gas available for the proposed exports. While approving five of the applications, the Board rejected the sixth—by Niagara Gas Transmission—because it considered the proposed price at which the gas would be sold failed to meet the test laid down in the NEB Act of being "just and reasonable in the public interest". The export was approved later that year following an upward revision in the contract price.

The Board also found itself severely taxed during the latter part of 1960 with respect to one of the other of its major functions—that as an advisor to the government on a broad range of energy matters. In this case, the agency found itself called on to undertake a number of studies in connection with the development by the government of a new National Oil Policy, which had been advocated in the second report of the Borden Royal Commission. Following the announcement of the new policy on February 1, 1961, the Board was heavily involved as the "chosen instrument" of the government in overseeing its implementation. Faced with the shut-in of a substantial volume of potential oil production in Western Canada, the government sought by moral suasion to increase output from around 550,000 barrels per day in 1960 to 800,000 barrels per day by 1963 both by increasing exports to the United States and backing out foreign crude oil and products from domestic markets west of the Ottawa Valley—particularly in Central and Western Ontario.



In the event, this landmark policy was implemented with considerable success. Over the period 1960 to 1964, average production of domestic crude oil increased by more than 50 percent and, by 1966, it had reached a new record of just over one million barrels daily. About 55 percent of the growth was accounted for by increased exports and the balance by increased supplies sold in the domestic market.

In 1962, the Board was deeply immersed in studies involving another major question of government policy—the development of Canada's vast hydroelectric power potential in areas far distant from the markets it might be capable of serving. For decades, Canada had adopted a highly restrictionist stance with respect to the export of power, which was reflected in the Electricity and Fluids Exportation Act of

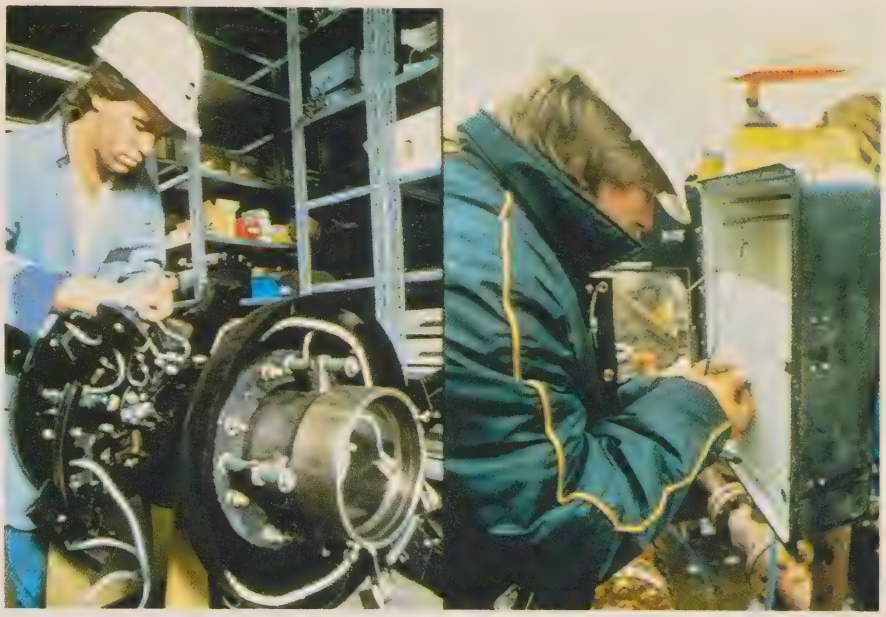
1907. In its Annual Report for 1962, the Board noted that there were a number of remote hydroelectric power sites available in Canada "which, if not soon harnessed, may remain unused."

All of these studies came to fruition in October 1963, with the announcement by the Minister of Trade and Commerce of the Liberal government that had assumed office earlier that year, Mitchell Sharp, of a new National Power Policy. Basically what it involved was the development of substantial new markets both through long-term exports and interconnections domestically and between Canada and the United States to make economically feasible the development of substantial new blocks of hydroelectric power from far-distant sites that could now be efficiently transmitted to market by the development of new technology involving the use of high-voltage, direct current systems.

While undertakings such as the omnibus gas export hearings, the National Oil Policy and the National Power Policy were the chief focus of attention during these early years, the Board was also heavily involved in performing essential tasks of a more routine nature.

Pipeline Safety

From the beginning, pipeline safety was a consideration demanding high priority. It was undoubtedly a concern that was very much in the public mind



Safety has always been of prime concern to the pipeline industry and the National Energy Board. Canadian steel mills like Ipsco, Stelco and Algoma have been producing most of the pipe required in Canada since the late 1950s. Pipe is subject to a variety of testing procedures at the steel mill and in the field.

The distance and size of pipeline systems in Canada are not always as important as the terrain they have covered. Although only 200 km (110 mi) in length, the construction of the Alberta Natural Gas pipeline in 1963 was highlighted by an exceptionally treacherous crossing of the Rocky Mountains.

following a Christmas Eve explosion in 1957 during testing of the TransCanada line near Dryden, Ontario. "At a pressure of 1028 1/2," recounts William Kilbourn in his book, *Pipeline*, "there was a tremendous roar, the ditch heaved, the cover of soil and rock flew upwards, and the pilot of a TCA aircraft saw a long flash of light leap from the earth below him. The longest pipeline break in history, some three and a half miles, took place instantly."*

While virtually all of the standards and safety codes in effect in Canada at the time were those prevailing in the United States, by the early 1960s the Board had already begun to work with the Canadian Standards Association and industry to develop regulations better designed to meet requirements in Canada. Other studies were also being undertaken, such as those on aluminum pressure piping and bacterial corrosion of buried steel pipeline.

The Dominating Export Market and Burgeoning New Discoveries

Work also continued to go forward on such matters as the development of gas and oil pipeline uniform accounting regulations and regulations with respect to international power lines. In 1963, the staff published a short-term energy forecast covering the period to 1966, which formed part of a longer term study of supply and demand that was still in the process of being developed. Following the announcement of the new National Power Policy in 1963, NEB staff became involved in several studies on potential new power developments, including those of the Lower Nelson River and the Saint John River.

Throughout the latter part of the 1960s, the energy picture was dominated by the sharply rising demand for Canadian oil and gas, particularly for export to the United States.

In 1965, four new gas export licences were approved, increasing maximum authorized volumes from 39.6 million cubic metres (1.4 billion cubic feet) per day to 50.1 million cubic metres (1.8 billion cubic feet) per day. The following year, the Board approved three new export licences involving shipments through the new Great Lakes Gas Transmission System that TransCanada proposed to build through the United States from Emerson, Manitoba, to Sarnia, Ontario, both to carry gas for export to the U.S. midwest and to supplement supplies to Eastern Canada through its all-Canadian system.

While the Board approved the Great Lakes proposal, it encountered heavy weather from other sources on both sides of the border. In the United States, the plan was vigorously fought before the Federal Power Commission and later the courts by Northern Natural Gas of Omaha. In Canada, the federal government endorsed the scheme only after a compromise arrangement was worked out under which TransCanada undertook to ensure that more than 50 percent of all domestic deliveries of gas destined for Ontario and Quebec would be transported through the northern line, a proportion that would be increased to 60 percent by 1976 and ultimately to 65 percent. In the United States, the opposition of Northern Natural was eventually overcome and construction of the Great Lakes system completed in late 1968, providing the potential for a further substantial increase in the export of gas south of the border.

On the petroleum front generally, this was a banner period. Capital spending on new exploration and development, land acquisition and gas processing facilities kept climbing above the $1 billion-mark to new records each year. The huge Rainbow-Zama oil field in Northwest Alberta was discovered in early 1965 and new seismic techniques led to the discovery of substantial natural gas reserves in the foothills of both Alberta and British Columbia. Wells were being drilled offshore from Vancouver Island on the West Coast and Sable Island on the East Coast. In 1967, the start-up of production from mining of the Athabasca Oil Sands attracted

**Pipeline: TransCanada and the Great Debate* published by Clarke, Irwin & Company Limited, 1970.

When the Great Canadian Oil Sands (now called Suncor) plant commenced operations in 1967, it was billed as the world's first oil mining complex. It has the distinction of being the first operation to produce commercial quantities of synthetic crude from the oil sands.

The largest hearing in the history of the Board was triggered by discoveries of oil and gas in Prudhoe Bay off the coast of Alaska. It began in 1975 and involved competing applications to construct a pipeline to carry gas from Prudhoe Bay and the Canadian MacKenzie Delta area to southern Canadian and American markets. By the time the decision came out, in July 1977, two years of Board hearings had taken place and were recorded in a three-volume report on Northern Pipelines.

worldwide attention. U.S. demand for Canadian oil was buoyant because of the closing of the Suez Canal following the renewed outbreak of conflict in the Middle East and Interprovincial was planning to loop its line so as to bring Canadian supplies into reach of the rich Chicago market, a plan that received presidential authorization early in 1968.

In 1968, the mammoth reserves of oil and gas at Prudhoe Bay on the North Slope of Alaska were discovered, which touched off what the Board described as an "unprecedented level of activity" onshore and offshore in the Canadian Arctic both around the mouth of the Mackenzie River and the eastern islands. By the following year, the Board had launched a study of the environmental problems of constructing energy facilities in the North and had made a back-of-the-envelope estimate of the cost of building a 6 000 km (3,600 mi) pipeline from the Mackenzie Delta to Chicago of $1.25 billion.

In 1967, Canada entered into an undertaking with the U.S. government voluntarily to restrain Canadian oil exports south of the border. In the face of rising demand for oil from abroad, which early in 1969 was reflected in a significant increase in U.S. prices, Canadian authorities found it impossible to limit oil exports to the target level. In that same year, total exports to the United States amounted to more than 88 195 cubic metres

(555,000 barrels) per day, almost as much as Canada's total oil production in 1960, the year preceding introduction of the National Oil Policy.

In the face of mounting demand for Canadian petroleum from the United States, heavy pressure was beginning to be placed on the availability of supplies to meet Canadian requirements. In 1970, therefore, the Governor in Council brought into force Section 87 of the NEB Act, which provided authority for control over exports and imports of petroleum and petroleum products. By regulation, the government initially authorized the Board to control only the import of motor gasoline into Eastern Canada. Because the intent of the National Oil Policy was being jeopardized as a result of new pressures that were building up, the Board was authorized under Section 87 to control imports of gasoline into the Atlantic region, Quebec and Ontario and to prohibit transfers without Board approval.

Meanwhile, the petroleum boom continued unabated in 1970, when spending on exploration and development climbed to a new record of more than $1.4 billion and oil production hit a new peak in excess of 230 200 cubic metres (1.45 million barrels) of oil per day. Exploration of the Arctic frontier continued to dominate the scene, particularly after the discovery of oil in the Mackenzie Delta and a second discovery, this time of gas, on King Christian Island in the High Arctic. Faced with runaway imports of petroleum from Canada, the U.S. government placed supplies from this country under mandatory controls in 1970. Because of the pressure of demand, however, the U.S. government was compelled progressively to increase the quotas on Canadian imports. The net result was that total exports of crude oil and equivalent increased during the year by some 20 percent to a new high of 105 675 cubic metres (665,000 barrels) per day.

The discoveries of petroleum in the Canadian Arctic in 1970 were followed in 1971 by the first discovery of oil and natural gas on Sable Island off the coast of Nova Scotia. Oil exports to the United States continued their upward climb. While the development boom continued in full flight, the first small cloud had already appeared on the horizon. It was in 1971 that the Board provided the first indication of its concern over the supply of oil available to meet these growing domestic and export requirements. For the second year in a row, net production of crude oil and natural gas liquids had exceeded gross additions to reserves. "The Board views this development with unease," the Annual Report stated.

The same report also noted that, in the early months of 1971, there had been a "sharp increase" in overseas prices because of a new agreement negotiated between the major oil companies and the member states making up the Organization of Petroleum Exporting Countries (OPEC), an association beginning to make its presence felt. In retrospect, however, the view of what constituted a "sharp increase" in prices rings rather strangely considering that between 1970 and 1971 posted prices rose only from $1.35 to $1.75 a barrel!

The pressure of U.S. demand for Canadian oil continued to mount through the early 1970s, notwithstanding the mandatory controls to which it was nominally subjected. "By early 1973," the Board recalled in its Annual Report, "levels of export demand for Canadian oil began to strain the capacity of oil production and transportation systems and to threaten the continuity of supply of Canadian oil and domestic refineries dependent on it."

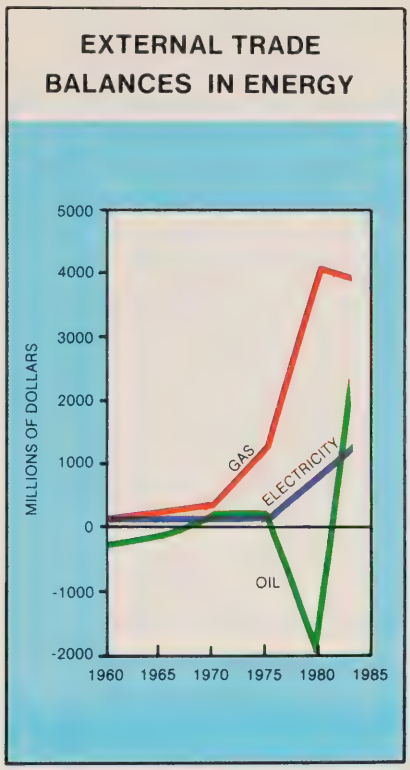
The Broadening of Petroleum Export Controls

On the Board's recommendation, the federal government made the export of crude oil subject to licensing by the NEB as of the beginning of March 1973, and as of mid-June also brought the export of motor gasoline and middle distillates, such as diesel fuel and heating oil, under export control. Despite the controls applying to both the export and import of oil flowing from Canada to the United States, exports in 1973 of crude oil and petroleum products climbed to the highest level reached then or since—

182 429 cubic metres (1,148,000 barrels) per day.

The extension of controls over exports of crude oil and products during the early part of 1973 marked only the beginning of far-reaching changes in policy that in time would affect almost every aspect of government levies, pricing and marketing of petroleum . Even before the outbreak of renewed conflict in the Middle East in October 1973, that led quickly to a fivefold increase in world oil prices, upward pressure in Canada created by forces abroad had led the government in the previous month to impose a freeze on domestic oil prices and subsequently to the imposition of an export levy to enable government to collect the difference between domestic price and the prevailing market price south of the border. (In 1974, the initial export tax, which was collected by the Department of National Revenue, was converted to an export charge and its collection delegated to the National Energy Board. In the last nine months of 1974, the total amount of export charges collected came to $1.2 billion.)

Early in 1973, the Board announced it would hold public hearings to consider long-term policy matters relating to Canadian petroleum exports. The report, which was issued the following year, led the federal government in October 1974, to announce its intention of phasing out oil exports and allocating domestic supplies



almost entirely to meeting Canada's own requirements. The Board concluded from its study that production of petroleum from conventional areas of Western Canada would begin to decline by as early as 1975. While this loss of production would begin to be replaced by new supplies from the oil sands of Alberta and from the frontier areas commencing around 1980, the Board anticipated there would be a net deficit balance in Canada petroleum trade of some 31 780 cubic metres (200,000 barrels) per day by 1982. An integral part of the new federal policy that was adopted on the strength of the Board's report involved the extension of the Interprovincial oil pipeline from Sarnia to transport western Canadian oil to refineries in the Montreal area. During 1974, the Board began consideration of the application by Interprovincial Pipeline (IPL) to build a 835 km (500 mi) extension with an initial capacity of 40 000 cubic metres (250,000 barrels) per day.

Gas Exports—Growing Issues of Price and Available Supplies

While this dramatic sequence of events on the oil front was unfolding during the latter part of the 1960s and the early 1970s, there were also a number of other highly significant developments on other fronts in which the Board was also deeply involved—particularly with respect to natural gas.

As in the case of oil, production of natural gas was climbing to new records in the latter part of the 1960s, amounting in 1967 to an average of 113 311 360 cubic metres (4 billion cubic feet) per day, with 39 658 976 cubic metres (1.4 billion cubic feet) per day going to the export market. Because of delays in the United States in securing final approval for building of the Great Lakes pipeline, there was a severe strain on the capacity of the TransCanada system to meet the rapidly growing demand for western Canadian gas in Ontario and Quebec.

In 1967, attention began to focus on what was to become an increasingly critical issue right up to the present time—the pricing of Canadian gas exports. In 1955, Westcoast Transmission had been authorized to export up to 8 440 000 cubic metres (300,000 million cubic feet)

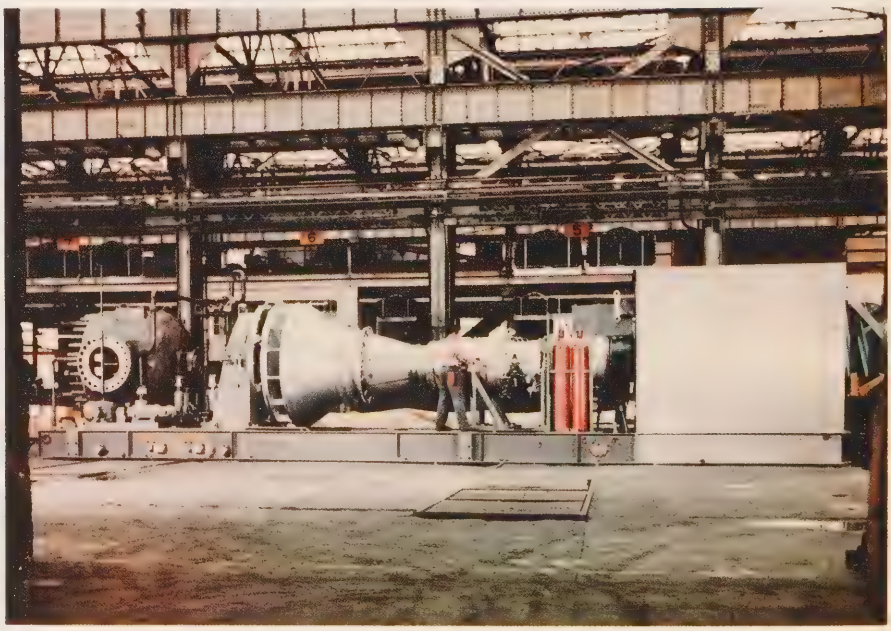
per day of gas to a predecessor of El Paso at 22 cents per million cubic feet—what the NEB was subsequently to describe as a "distress price". In March 1967, the Board approved an application by Westcoast that essentially involved an upward revision in that price to 27 cents, together with a provision for further annual escalation as it applied both to the original volume authorized for export and a proposed new export of 200,000 million cubic feet per day up to 1991. In August of the same year, however, the U.S. Federal Power Commission (FPC) rejected any increase in the price of gas already authorized for import and proposed to limit the price that could be paid by the importer for the new volumes being sought.

In October, Westcoast returned to the Board with a new application based on a revised contractual arrangement with El Paso designed to meet the FPC conditions. In Reasons for Decision issued in December 1967, the Board noted that under the Act it was required to consider whether the proposed export price was "just and reasonable" in relation to the Canadian public interest. The Board spelled out three tests that it applied to determine whether this requirement had been met—whether the price covered an appropriate share of production costs, was no less than comparable prices for Canadian customers, and approximated the cost of alternative energy sources in the U.S. market. The report concluded that the revised contract before it failed to meet these tests; instead the contract proposed a pricing method that was "completely unacceptable".

Early in 1968, Westcoast submitted yet another application for approval of a further revision of the contract with El Paso. In its Reasons for Decision in February, the Board decided that the amended contract contained export price provisions that were "approximately midway" between the points the NEB and the FPC had indicated previously were acceptable. After taking account "of all the circumstances", the Board concluded this proposed compromise was just and reasonable—a conclusion shared also by the FPC.

While the issue of gas export pricing continued to reverberate periodically later in the 1970s and into the 1980s, the first echo from the initial NEB-FPC confrontation became evident in 1970, when the Canadian government amended regulations under Part VI of the Act to require the Board to make it a condition of each gas export licence that the price be subject to NEB review. Where there had been a significant increase in the value of alternative energy sources in U.S. markets being served by Canadian gas, the Governor in Council could, on the recommendation of the NEB, order an increase in the export price.

In the early 1960s, industrial gas turbines began to be favoured over reciprocating engines. By the mid-1960s, simple cycle aero-derivative gas turbines were replacing their larger predecessors. Since the mid-1970s, a second generation of aero-derivative gas turbines, featuring thermal efficiencies of over 30 percent, have been gaining widespread acceptance.



Meanwhile, the Board had embarked on hearings that began in late 1969 and stretched into 1970 on a number of applications that in total involved further proposed exports of some 10 exajoules (9.5 tcf). Given the substantial volume involved, the Board decided to review the criteria adopted for determining the extent to which present and prospective supplies of gas might be surplus to Canada's own long-term requirements and, therefore, available for export. Presuming a surplus existed, the Board raised the further question as to how it should be allocated among potentially competing applications. In addition, the Board invited submissions on the yardstick that should be applied to determine whether the price of gas sold abroad was just and reasonable.

By the time the applications came to hearing, the total volume proposed for export had been reduced to 9.3 exajoules (8.9 tcf), for the most part over a period of 23 to 25 years. In its decision in August, concurred in the following month by the Governor in Council, the Board concluded under its somewhat revised criteria that the amount of gas surplus to Canadian requirements amounted to only 6.7 exajoules (6.4 tcf). It agreed to license approximately this amount for export, but for terms of 12 to 15 years, which were significantly less than those sought.

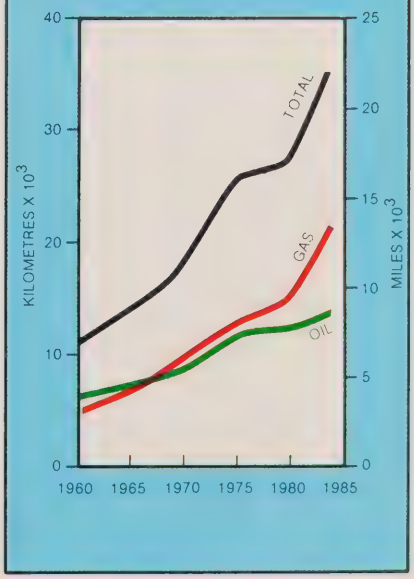
Even while these applications were under consideration, further applications involving the export of an additional 3.8 exajoules (3.6 tcf) had already been submitted, which led the Board to observe in its 1970 Annual Report that the U.S. market had become "practically unlimited". As of the end of 1970, total authorized exports to the United States amounted to 40 exajoules (38 tcf), of which some 5.2 exajoules (5 tcf) had already been sold.

The Board decided to consider these new applications in two phases—the first to consider the extent to which a surplus might be available for export, the second to consider individual applications. The hearings never got beyond the first phase. In a report that had a prolonged and widespread impact, the Board concluded that, as of mid-1971, the current and prospective supply of gas then available was insufficient to meet Canada's own long-term requirements, far less the additional exports being requested. Rather than a surplus, Canada faced a deficit of around 1.2 exajoules. "The evidence of virtually every witness appearing before the Board... confirmed that requirements for natural gas in Canada are increasing much more quickly than was previously foreseen even as recently as August 1970," the Board asserted.

The Regulation of Tolls and Tariffs

When he submitted the Bill providing for the creation of the Board to the House of Commons for second reading in 1959, the Minister of Trade and Commerce, Mr. Churchill, stressed the importance of the new authority the NEB would exercise over pipeline tolls and tariffs. From the beginning, the Board maintained a continuing watch over the tolls and financial position generally of pipelines under federal jurisdiction that were established following its own creation. It was only in 1969, however, under authority of Section 97(1) of the Act, that other federally-regulated pipelines in operation prior to the time that the NEB came into being—such as TransCanada, Westcoast and Interprovincial—were formally brought under the Board's

LENGTH OF PIPELINES UNDER NEB JURISDICTION



regulatory responsibility. Nor up to then had the Board conducted any public hearings with respect to the tolls and tariffs of any pipeline company. This outcome appeared to be very much in line with the approach advocated by the Board's first Chairman, Ian McKinnon, who in a speech to the Canadian Gas Association in 1960 expressed the hope that it would be possible to "avoid long, contentious, costly hearings" on toll charges. At the same time, he urged the industry to remember that it was "affected with a public interest and that the public, after all, in our democracy has the last word." The eventual decision to bring pipelines existing at the time of the NEB's establishment under the Board's authority for toll and tariff purposes was strongly urged by TransCanada, which considered such regulation would facilitate future financing.

In 1969, TransCanada submitted its first application for a toll increase since coming under the NEB's regulatory control. The Board subsequently issued an order for its first public hearing in this area to consider the application in early 1971. The hearing was conducted in two phases, the first dealing with the company's rate base, rate of return, and cost of service, the second with the pipeline's actual tolls and tariffs.

NEB inspectors carry out inspection programs to ensure that pipelines are constructed and maintained in a manner that meets the Board's standards.

YEARS OF TRANSITION—1974-1984

Gas Export Pricing

With the volume of Canadian oil exports to the United States being progressively phased down in line with the new policy, and with further increases in gas exports precluded in the early 1970s by looming domestic shortages, attention focused particularly on the price being paid for the volumes of Canadian gas then being exported under previously approved licences.

Following public hearings in 1974, the Board concluded that the current average selling price at the border of around 55 cents per million British Thermal Units (MMBtu) was significantly below the cost of alternative sources of energy in U.S. markets. The Board recommended that a uniform border price be established of $1(Can) per MMBtu as part of an initial move toward equivalence in commodity value terms, which the government authorized to go into effect at the beginning of 1975.

At the beginning of November of that year, the price was further increased from $1 to $1.60 per MMBtu. The following year, the Board recommended that varying prices be established for Canadian gas at the border based on the commodity value of the fuel in the major regional markets of the United States. The Canadian government agreed to continue to maintain a uniform border

price, however, after the U.S. Administration complained that differentiated prices would be discriminatory. Beginning in 1977, Canadian authorities began to move away from commodity value as a basis for pricing Canadian gas exports and shifted to the concept of pricing in relation to the equivalent cost to Canada of importing oil from abroad to meet its own domestic requirements. Over the strong objection of the U.S. government, the sharp increase in world oil prices at the turn of the decade led Canada in mid-February 1980, to increase the price from $3.45(U.S.) to $4.47 per MMBtu and in April 1981, to further raise the price to $4.94.

Arctic Gas, Pipelines, the Environment and People

During 1974, the Board launched another hearing late in the year on the supply and demand outlook for natural gas and it received the first submissions with respect to applications for a pipeline to transport Canadian and/or U.S. gas from the Arctic to southern markets in both countries.

In this same year, the Board also began to respond in a substantial way to one of the developing concerns of the time—safeguarding of the environment. The Board engaged a staff with a broad area of expertise and experience to advise it on environmental matters. It also laid down general environmental guidelines with respect to the construction and operation of international power lines. Through changes in its regulations and Rules of Practice and Procedure, and through more general guidelines, provision was also being made to enable tighter control to be exercised with respect to environmental considerations involving the construction and operation of oil and gas pipelines.

The outlook with respect to supply and demand for both oil and gas continued to absorb a considerable amount of attention around the mid-1970s. The Board in particular found itself embroiled in considerable controversy following its report of 1971 that concluded Canada faced the prospect of a long-term gas supply deficit in relation to requirements. Facing up to criticism in its 1975 Annual Report, the Board observed that it had "frequently been alleged" that it had "allowed itself to be misled by the petroleum industry" with respect to the available supply of hydrocarbons in Canada. Such an allegation was mistakenly based on widespread misunderstanding of the distinction between "established reserves" and "ultimate potential".

Forecasting the potential volume of supplies that might become available involved considerable speculation, so that it should come as no surprise when such estimates were often radically changed on the basis of new information, the report asserted.

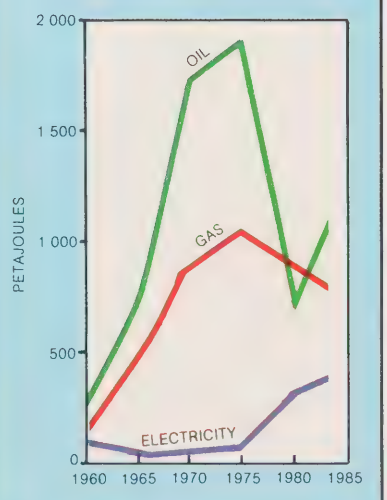
To meet the challenges of the North and off the East Coast, a flurry of research and development work is underway. Pipelines are being tested under various conditions in areas of permafrost and discontinuous permafrost. Ditching machines, capable of operating in frozen soils, are being developed for pipelines of up to 1 422 mm (56 inches) in diameter.

"It is unfortunate and quite unjustifiable when a reduction in an ultimate potential estimate is misinterpreted as a previous overestimation of established reserves."

In its earlier report for 1975 on gas supply and requirements, the Board found that because of deliverability problems there was likely to be a shortfall of supply experienced by the late 1970s, although this might be averted, the report concluded, through increased exploration and development. Even if existing export contracts were abrogated, the Board concluded that existing reserves would become inadequate to meet domestic demand by the mid-1980s.

Against this background, the hearings to consider competing applications for the shipment of gas from the Arctic frontier to markets in the South attracted considerable attention. As a prelude to the hearings, the Board found itself faced with objections to the appointment of Marshall Crowe, the then NEB Chairman, to preside over the forthcoming northern pipeline hearing. Concern in particular was expressed by Canadian Arctic Gas Pipeline Ltd. (CAGPL), one of the applicants, and by certain other intervenors that Mr. Crowe's impartiality might be open to question at some subsequent date because of his previous involvement in studies associated with what eventually became the CAGPL proposal when he was Chairman of the Canada Development Corporation.

CANADIAN EXPORTS OF ENERGY



Acting on a reference that was made to it, the Federal Court of Appeal concluded in mid-December that the Board would be justified in taking the position that Mr. Crowe should not be disqualified from presiding over the hearing because of a "reasonable apprehension or reasonable likelihood of bias". The Board, meanwhile, had already begun hearings in late October 1975, on the competing applications. One application submitted by CAGPL involved building a line to carry U.S. gas from Prudhoe Bay along the North Slope of Alaska and Yukon to the Mackenzie Delta, where Canadian reserves would enter the system for transportation southward along the Mackenzie Valley. The other application was by Foothills Pipeline Ltd. for an all-Canadian "Maple Leaf" line to transport Canadian gas only from the Delta area.

On March 11, 1976, however, the Supreme Court of Canada reversed the judgment of the Federal Court of Appeal. Mr. Crowe and the other two members on the panel withdrew from consideration of the case. On April 12, a new round of hearings began before a panel presided over by J.G. Stabback, joined by C. Geoffrey Edge and R.F. Brooks.

The questions before the Board for consideration became more complicated in August of that year when the proponents of the Maple Leaf line in Canada created a new corporate entity called Foothills Pipe Lines (Yukon) Ltd. to join with an American partner in pressing for approval of an entirely new scheme for moving Alaska gas to the continental United States. This involved the building of a 1067 mm (42 inch) diameter (later revised to 1219 mm [48 inch]) pipeline south to Fairbanks, Alaska, more or less parallel to the oil line then under construction, and from that point southeastward along the Alaska Highway to Northern Alberta, where the system would be divided into an Eastern and Western Leg similar to that proposed by CAGPL.

In all, the hearings—the longest ever conducted by the Board—involved 214 sitting days in Ottawa, Inuvik, Yellowknife

and Whitehorse. More than 1,200 exhibits were submitted and the transcript ran to more than 37,000 pages. In Reasons for Decision issued on July 4, 1977, the Board recommended against the CAGPL project because of both environmental considerations and potentially adverse social and economic impacts—particularly on native people. The report recommended instead that the Alaska Highway Pipeline Project put forward by Foothills (Yukon) be approved, subject to the company agreeing to submit an application subsequently for the building of a so-called Dempster Lateral to provide access to Canadian reserves on the Mackenzie Delta. A somewhat revised version of the project in Canada as conceived by the NEB subsequently became the basis for an agreement signed by the Canadian and U.S. governments on September 20, 1977, providing for joint construction of the project in both countries.

Restoration of a Gas Surplus

In its *Reasons for Decision: Northern Pipelines*, the Board for the first time since 1973 identified an increase in marketable reserves of gas—some 2.5 exajoules (2.4 tcf)—which reflected the results of accelerated exploration and development in response to increasing wellhead prices. The Board also allocated a reserves estimate for the first time to the Mackenzie Delta—5.6 exajoules (5.3 tcf). In addition, the Board calculated that a relatively small and temporary surplus supply of gas was becoming available in Canada. The Board proposed that the southern segments of the Alaska Highway Pipeline be "pre-built" to provide for the early delivery of this surplus to the U.S. markets, providing a guaranteed arrangement could be made to provide for the return of the gas at a later date from Alaskan reserves following completion of the remainder of the system.

In the months that followed publication of this report, the supply-demand picture with respect to gas continued to brighten as a result of sharply increased exploratory activity. In a report in February 1979, the Board judged that Canada's established reserves at the end of 1978 were up by 5 exajoules (4.7 tcf) over the total 2 years previously and there was a surplus available for export of some 2.1 exajoules. In July, a hearing was begun on 11 applications for export licences. In its report later that year, the Board concluded that the surplus available for export under its most stringent test amounted to 4.8 exajoules (4.5 tcf) and authorized total exports, plus transportation fuel, up to a period ending in 1987 of 4.3 exajoules (4 tcf).

One of the critical issues for consideration was the volume of gas to be made available for export to support the building of the proposed Eastern and Western Legs of the Alaska Highway Pipeline. Following complaints by the Canadian and U.S. proponents of the project that the amount of gas authorized for export through the pre-build was insufficient to permit financing of the project, the Board authorized a small additional amount from the previously unallocated surplus. The Board also agreed that a portion of gas allocated to two shippers for export through the TransCanada-Great Lakes

"Smart pigs", or electronic pigs, are now routinely run through pipelines in a search for dents, external or internal corrosion, and other flaws that can lead to failure. These new inspection devices, with their complex electronic sensing and recording equipment, bear little resemblance to the original pig, a cleaning tool developed in the 1950s.

systems might also be moved through the proposed Eastern Leg of the Alaska Highway Pipeline.

A major obstacle standing in the way of proceeding with the proposed pre-building of the southern sections of the Alaska Highway Pipeline in Canada was Condition 12 (1) of Schedule III of the Northern Pipeline Act. This provision, which was based on the supposition that construction of the northern segments of the system would soon follow the building of those in the South, required the Canadian sponsor to satisfy both the Board and the Minister responsible for the Northern Pipeline Agency that financing had been obtained for the entire project in this country. Because it was impossible to fulfill this requirement in view of the prospective delay in proceeding with the building of the northern portion, the Board in early 1980 issued an order to amend this condition in line with its authority under the Northern Pipeline Act. The effect of this amendment was to require Foothills to demonstrate satisfactorily that it had obtained financing for the pre-build construction and could obtain it for the remainder of the system.

The federal government, whose concurrence was required both for increasing the volume of exports through the pre-build sections of the system and for the amendment to the financing clause, reserved judgment on both issues until it received what it considered to be reasonable assurances from the United States that the entire project would proceed expeditiously. In July 1980, the government pronounced itself satisfied on this ground and granted the approvals required to pave the way for the start of construction of the Western Leg, which was followed a year later by the commencement of construction of the Eastern Leg.

Additional Gas Pipeline Proposals

While the Alaska Highway Pipeline Project attracted much attention, several other new gas pipeline plans were brought forward during the latter part of the 1970s that also attracted considerable interest.

In November 1977, the NEB approved an application for the import from Algeria of liquified natural gas (LNG) at a point near Saint John, New Brunswick, where it was to be regasified and transported through new pipeline facilities to northeastern U.S. markets. Although approved by the Board, in the end the project foundered as a result of its rejection by U.S. regulatory authorities. In the same year, Polar Gas outlined plans for building a pipeline to carry gas reserves established in the High Arctic to the South, connecting with the TransCanada system in Northern Ontario.

In 1978, TransCanada submitted an application providing for the extension of its pipeline in two stages from Montreal to the Eastern Townships and Quebec City, which it subsequently proposed to build in a single phase. Some months later, a new

The Board considers major applications through public hearings.

enterprise known as Q & M Pipe Lines Ltd. (an affiliate of what subsequently became NOVA, An Alberta Corporation) applied to the Board for a certificate to build a pipeline from Montreal to Quebec City and from there to New Brunswick and Nova Scotia, which would involve the installation of nearly 3 250 km (2,000 mi) of main and lateral pipe lines. The following year, TransCanada initially proposed to amend its application to provide for an extension of its pipeline to the Atlantic provinces. Subsequently, this was merged with the Q & M plan to provide for the joint undertaking of the system by Trans Québec and Maritimes Pipeline Inc. Late in 1980, the Board approved construction of the project to a point near Quebec City, but declined to certify the remainder of the proposed system because of concern about the environment and the economic feasibility of the project.

In Reasons for Decision issued in July 1981, the Board approved the extension of the system to the Atlantic provinces on the basis of new environmental information put before it and provisions in the National Energy Program that strengthened the economic viability of the system. The undertaking of the project was later indefinitely deferred pending determination as to whether there were sufficient reserves in the Venture gas field off Sable Island to support construction of a pipeline to serve the eastern Canadian market and to export surplus gas to the northeast market of the United States.

The Arctic Pilot Project and the TransCanada Shortcut

In this same year, 1981, the Board also received a request from the Minister of Energy, Mines and Resources to examine and advise him on those aspects of the proposed Arctic Pilot Project (APP) that did not come directly under the NEB's regulatory jurisdiction. This involved the building of gas-gathering facilities in the High Arctic and construction of a plant on Melville Island to liquify gas for shipment by LNG tankers to a port at either Gros Cacouna, Quebec, or Melford Point on the Strait of Canso in Nova Scotia, where it was to be reconverted to gaseous form in facilities proposed by TransCanada PipeLines. It was originally intended that this gas would be exported to the United States through the displacement of Alberta supplies. When this prospective market softened, the proponents of the scheme looked to Europe for buyers. Phased hearings into various aspects of the project were ultimately suspended in August 1982, by the Board pending the submission of firm marketing plans by the project sponsors. In the absence of such plans, the Board decided in August 1984, to dismiss both the APP and the TransCanada applications.

In late 1981, the Board also undertook hearings on the application by TransCanada for construction of the so-called North Bay Shortcut, a 420 km (260 mi) line generally following the Ottawa River to join with the existing system at Morrisburg, Ontario. Undertaking of this project was approved the following year.

New Oil Pipeline Plans

During the latter part of the 1970s and early 1980s, there

The "North Bay Shortcut" provides a shorter route to serve substantial new natural gas markets in Eastern Canada. The TransCanada system to Montreal was extended by Trans Québec & Maritimes Pipeline, reaching Trois-Rivières in 1982 and Quebec City in 1983. Laterals were built to serve the Eastern Townships region in 1983 and work is underway on laterals to serve the Saguenay-Lac Saint-Jean area by mid-1985.

were also a number of significant developments on the oil front. By 1976, oil had begun to flow through Interprovincial's pipeline from Sarnia to Montreal. In a study undertaken in 1978 at the request of the Minister of Energy, Mines and Resources, the Board estimated that production of oil in Western Canada could sustain deliveries through the system to Montreal refineries of 50 000 cubic metres (315,000 barrels) per day to late 1983, following which throughput was expected to decline gradually to the 15 875 cubic metres (100,000 barrels) per day level of 1995. The start-up of production of output from the Athabasca Oil Sands by the new Syncrude plant, which had a rated capacity of 19 840 cubic metres (125,000 barrels) per day also began in 1978.

By 1979, there were three proposals on the table involving Canada for the transportation of oil from the North Slope of Alaska to the U.S. midwest. The initial proposal, filed by Kitimat Pipe Line Ltd., in late 1976, involved building a line from the West Coast port of Kitimat to transport oil received by tanker from Alaska and offshore to Edmonton, from which point it would be trans-shipped by the Interprovincial pipeline system to Northern Tier U.S. refiners. In the end, the application was never pursued. Trans Mountain Pipe Line Co. proposed that oil shipped by tanker to a U.S. West Coast port be carried by pipeline from Sumas, Washington, to Edmonton, where it would be moved by the existing Interprovincial pipeline to the U.S. midwest. A new company, Foothills Oil Pipe Line, subsequently proposed to build a system from the Yukon-Alaska border to Edmonton, where it would also connect with the IPL system. While the Board stated that it was prepared to issue a certificate to Trans Mountain, and the Foothills plan was placed on hold, U.S. authorities in time approved an all-American line that encountered objections on environmental grounds from the Governor of Washington State and also was confronted by financing difficulties as a result of changing economic circumstances. In the event, no line was ever built.

Interprovincial Pipeline has almost completed construction of the Norman Wells oil pipeline, which is located just south of the Arctic Circle. First deliveries of oil to southern markets are expected by mid-1985. The line extends 866 km (500 mi) from Norman Wells, Northwest Territories to Zama, Alberta.

In March 1980, Interprovincial submitted an application to the Board with respect to construction of a proposed 866 km (500 mi) pipeline to transport crude petroleum from expansion of the Imperial Oil field at Norman Wells in the Northwest Territories to Zama, Alberta, where it would connect with an existing pipeline system. The following year, the Board approved certification of the pipeline to transport up to 5 000 cubic metres (some 30,000 barrels) per day . The federal government,

however, directed that no pipe should be laid until November 1983, to provide time to resolve certain socio-economic questions, particularly as they involved the participation in the project of native people.

The Export of Power—A Growing Board Responsibility

Although for the most part it attracted less attention than many other aspects of its responsibilities, the Board found itself increasingly involved from its earliest years in matters relating to the export of electrical energy and the construction of international power lines. This was particularly the case following the studies it initiated that led to the adoption in 1963 by the government of a new National Power Policy. In the years that followed, the Board was involved in a number of studies with respect to the possible undertaking of several major hydro developments and interprovincial and international power connections. (The article that follows provides a more comprehensive look at the development of electrical interconnections between Canada and the United States.)

In late 1965, a major power blackout started in Canada and spread to New York and the New England States. The Board was requested by the Canadian government to undertake a study aimed at determining the causes of the failure and means of preventing a recurrence. Arising from this study, and

The Board's hearings on the Northern Canada Power Commission at communities in the North were somewhat less formal than those to which we are accustomed (Pangnirtung, NWT—1983).

The first export of nuclear-generated electricity from Canada took place in 1983 when the New Brunswick Electric Power Commission started exporting energy generated at its Point Lepreau plant to the New England States.

extensive studies in the United States, a system of voluntary regional reliability councils was set up to reduce the possibility of blackouts in one power system cascading into other systems through major interconnections. The Board and the U.S. Department of Energy are represented by observers at the meetings of the North American Electric Reliability Council, which coordinates the activities of the regions.

In 1960, the total amount of power generated in Canada amounted to 114 billion kilowatt hours (kW.h), of which about 5.5 billion kW.h were exported to the United States on a firm or interruptible basis. In the years that followed, there was a substantial increase both in Canadian power generation and in its export south of the border. A notable yardstick was provided by the outcome in the banner year of 1977, when net exports of electricity almost doubled from the year before to 17 267 gigawatt hours (GW.h) and net revenue from trade in electricity jumped from $167 million to $407 million, reflecting both an increase in amount and in price.

The early 1980s brought renewed opportunities to further increase substantially Canada's net exports to the United States both in the short term and over the longer term. The increased export opportunities grew out of the desire of a number of U.S. utilities to shift away from high-cost, oil-generated power to less costly supplies, principally from hydro and coal-fired generation available from certain U.S. areas and from Canada. This situation is expected to continue for a number of years into the future. In addition, the present excess generation capacity in Canada that resulted when growth in domestic demand fell short of earlier projections has given rise to added opportunities for exports of firm power for a few years. There are also prospects for construction of generating plants in Canada that would be dedicated for exports. The combination of all of these factors points to an expanding opportunity for Canadian electrical exports to the United States.

As of 1983, Canada's net annual exports of electricity to the United States had climbed to nearly 37 000 GW.h, producing net revenue of around $1.3 billion. This represented an increase of 18 400 GW.h and $850 million over the level in 1977.

Some of the more notable export licences granted by the Board over the years include:

- The 400 megawatt (MW) unit participation sale from New Brunswick Power's Coleson's Cove plant to New England in 1973.

- The 800 MW Summer Diversity Exchange authorized in 1976 between Hydro-Québec and the Power Authority of the State of New York (PASNY).

- The export of up to 325 MW of power from the Point Lepreau nuclear generating station in New Brunswick commencing in 1983, under participation agreements with New England utilities. This was the first export to be produced from nuclear generation.

- The export by Hydro-Québec of a substantial block of energy—some 111 terawatt hours—to PASNY commencing in 1984.

- The export by Hydro-Québec of some 33 terawatt hours of energy to the New England Power Pool (NEPOOL) commencing in 1986, which included construction of an international power line from the Sherbrooke area to the Vermont border.

An application is now before the Board for exports by Manitoba Hydro to Northern States Power Company. In the near future, the Board expects additional major applications from Manitoba Hydro, which would include construction of a transmission line to the Dakotas and Nebraska, and from N.B. Power for the sale of power from the proposed Lepreau II nuclear power plant, which might be built in part for dedicated exports to the United States. These and other export proposals confirm the likelihood

that electricity exports will continue to expand in the future.

In addition to electricity exports, the Board in 1983 became involved for the first time in a purely domestic electric power matter as a result of the request of the then Minister of Indian and Northern Affairs, the Hon. John Munro, that it undertake a review of a number of matters involving the rates and other financial aspects of the Northern Canada Power Commission (NCPC), the Crown-owned utility responsible for providing electrical power to communities in the Yukon and Northwest Territories. Early in the following year, the Minister announced that the Board had been requested to provide advice on the regulation of the rates of the NCPC, with each territorial government being given the opportunity to nominate a member to sit on the NEB panel, along with three regular members of the Board.

The Oil and Gas Front in the Early 1980s—Years of Turmoil

The early 1980s were marked by renewed ferment in the energy field nationally and internationally, fueled in no small part by the doubling of world oil prices that occurred between 1979-1980 as a result of further upheaval in the Middle East and the outbreak of war between Iran and Iraq. The massive increase that had already taken place in oil prices and the widespread anticipation of continuing sharp increases throughout the decade initially provided a powerful impetus to many energy mega-projects already on the drawing board and to the development of several major new proposals both in Canada and around the world.

It was not long, however, before these bright prospects at the beginning of the new decade suffered a severe reversal. The substantial increase in energy costs contributed significantly to sharply rising rates of inflation and of interest rates, which in turn caused the world economy to slide into the worst economic slump since the Great Depression of the 1930s. The recession, combined with a fall in demand for oil and natural gas brought about by conservation and mild weather, led to downward pressure on global petroleum prices that resulted in the abandonment of many energy mega-projects and the postponement of others.

Because of the far-reaching changes underway, the Board in April 1980, announced its intention of undertaking a public inquiry for the first time into the supply and demand outlook for all forms of energy at hearings to begin in November. Just the month before they were due to begin, the Liberal government that had been returned to office in February unveiled its National Energy Program (NEP), which involved major new policy provisions that were to have extensive repercussions both politically and in terms of future energy development. Because of the latter consideration, those participating in the review were given the opportunity to present supplementary submissions indicating the effect they considered the NEP would have on future energy developments.

By the time the Board's report, *Canadian Energy Supply and Demand 1980-2000*, was published in mid-1981, some of the political repercussions of the NEP were already evident. In protest against certain aspects of the policy, particularly as they related to pricing and revenue sharing, the Alberta government initiated a cutback in oil production between March and May of 9 500 cubic metres (60,000 barrels) per day, which was doubled in the following three-month period. A further reduction of 9 500 cubic metres per day due to go into effect in September was cancelled after the federal and Alberta government arrived at an agreement that, among other things, involved a further scheduled increase in domestic oil and gas prices.

While Canadian oil production in total during 1981 was down by some 23 840 cubic metres (around 150,000 barrels) per day, a drop of nearly 10 percent, what was particularly significant for the future was the fact that Canadian demand for oil products also declined substantially, reflecting the impact of slowing economic growth and the effect of rising prices in encouraging conservation.

By 1982, the continuing decline in the demand for petroleum in Canada as a result of economic recession and the impact of conservation was beginning to force a cutback in the production of oil in Western Canada—a problem that deeply involved the Board. The federal government began subsidizing the shipment of domestic crude oil from the Montreal terminus of Interprovincial Pipeline to the Atlantic provinces in an effort to relieve the shut-in production. In addition, the Board agreed to authorize the export of surplus heavy oil supplies for a period of up to one year, which resulted in a sharp increase in sales abroad. In the following year, 1983, the Board began for the first time in several years to authorize the export of a significant volume of light crude oil from Western Canada as a further means of minimizing the shut-in problem.

As a result of the accelerated pace of exploration and development in response to increased wellhead prices, established reserves of natural gas continued to grow. Faced with some 16 applications for new gas export licences or amendments to existing licences, the Board in late 1981 scheduled a three-phase omnibus public hearing for 1982. Following the conclusion of the first review phase, the Board decided to adopt more flexible procedures in determining the amount of gas available that was surplus to Canada's own long-term requirements. This included taking account of deliverability as a guideline rather than as a rigid test, and an assessment of volumes of gas likely to be exported under existing contracts, as opposed to taking account only of maximum authorized amounts. In Reasons for Decision issued in January 1983, the Board dealt with Phases II and III of the hearing, which involved the 16 licence applications under consideration and the determination of the surplus available for export.

In its decision, which broke new ground in a number of respects, the Board concluded that Canada had a surplus of some 18.4 exajoules (17.5 tcf) of natural gas, but that only some 12 exajoules were available to meet the pattern of export applications (less than half the amount requested). The Board authorized the export of 9.8 exajoules (9.3 tcf) to the United States, mainly between 1985 and 1994, and the export for the first time to Japan in liquified form (LNG). This involved the shipment of 2:4 exajoules (2.3 tcf) over a 15-year period from 1986 to 2001. Total authorized exports under these new and amended licences of 12.2 exajoules were in addition to the 12 exajoules of gas remaining to be exported under previously-issued licences. For the first time, all of the licences carried "sunset" clauses under which they could become

Computers and micro-processors have an important part to play today in the safe and efficient operation of pipelines. Their use minimizes the manpower required to operate pipelines and allows companies to operate many of their compressor, pump and meter stations remotely. Leaks and breaks can now be located more quickly and accurately.

invalidated if certain conditions were not met within a stipulated time.

Paradoxically, however, the approval of these additional exports to the United States came at a time when the natural gas market south of the border was seriously deteriorating. While U.S. gas prices continued their upward climb under the provisions the 1978 Natural Gas Policy Act, the demand for gas was being substantially reduced by a variety of factors. These included the impact of severe economic recession, conservation, mild weather and the growing competition from other energy sources such as residual fuel oil and electricity. While the suppliers of these alternatives had the flexibility to establish prices that reflected the decline in world oil prices that developed in 1983, many U.S. shippers found themselves bound to take or pay for a substantial volume of gas at rising prices.

Canadian exports, which were comparatively costly in relation to many U.S. sources of supply at the prevailing uniform price of $4.94(U.S.) per MMBtu, came under particularly heavy pressure, with the throughput volume being cut to little more than 40 percent of that authorized. The Board became closely involved in these developments both as an advisor to the government on gas export pricing matters and when it was required in its regulatory capacity to consider proposed amendments to the contract terms under a number of export licences to ease the take-or-pay and other similar obligations of U.S. buyers that found themselves hard pressed by market developments south of the border. In April 1983, the Minister of Energy, Mines and Resources reduced the base price of Canadian gas from $4.94(U.S.) to $4.40 per MMBtu and subsequently introduced an incentive scheme for the period up to October 1984, under which exports over a stipulated volume could be sold at a price of $3.40.

In the United States, the sharp increase that occurred in the prices of both domestic and imported gas precipitated a variety of proposals for amending the U.S. Natural Gas Policy Act. While the Administration pressed for complete deregulation of gas prices, another faction in Congress pressed for tightened control over price levels. A variety of proposals before Congress aimed at reducing prices and take-or-pay obligations with respect to gas imported from Canada and other countries were opposed by the Administration. In Congress, efforts to amend the Gas Act faced a stalemate. Early in 1984, however, the Secretary of Energy established new regulatory guidelines stipulating that new gas imports in future would only be authorized if the contractual arrangements would remain competitive with respect to price and other commercial terms throughout their lifetime.

While not mandatory, the guidelines also sought to encourage the renegotiation of contracts involving gas imports under existing licences in order to achieve the same objective.

To a considerable degree, the consequences of the inflated costs and inflated expectations that grew out of the developments in the energy field around 1979-1980 were reflected in a study undertaken by Board staff. The report concluded that huge increases in pipeline

Automatic welding of the pipeline girth welds is now quite common in Canada and research into high impact welding is already in the advanced stage. Increasing use of these welding methods can be expected to reduce pipeline construction costs in the future.

construction costs had taken place or were anticipated over the period from 1975 to 1985 and identified some of the principal causes. The Board's study subsequently led the Minister of Energy, Mines and Resources to appoint a task force under the direction of Vernon L. Horte, a man of long experience in the gas pipeline business, to consider means of moderating these cost pressures.

In various forums, the Board underlined the necessity of doing everything possible to simplify and streamline the whole process through to the decision-making stage with respect to the undertaking of major energy projects and beyond that to the regulation of their implementation and subsequent operation so as to reduce the heavy amount of time and cost involved. The Board recognized that, in part, this involved steps to eliminate duplication and overlap between various regulatory bodies at the federal-provincial-territorial level and to provide, where appropriate, for the necessary liaison and coordination of their respective activities. In like vein, the Board also embarked on a massive review, in consultation with industry and other interested parties, aimed at simplifying, clarifying and otherwise modernizing many of its own regulations, its Rules of Practice and Procedure, and the accompanying information requirements under those Rules. In addition, the Board engaged in studies with the Canada Oil and Gas Lands Administration (the federal body responsible for overseeing the exploration, development and production of oil and gas with respect to Canada Lands in the territories and offshore) and the Canadian Standards Association that were aimed at formulating new regulations to govern offshore petroleum developments.

1984—A Year of Transition to a New Quarter-Century

The year 1984, which marked the end of the first quarter-century of the Board and the beginning of the second, witnessed a series of developments that will have a significant impact on energy developments in Canada in the years ahead.

Out of the ashes of earlier plans for massive new energy projects that fell victim to recession, inflation, soaring interest rates and downward pressure on world oil prices, new plans began to take shape for the revival of many of these proposals on a much smaller scale—at least initially—than originally contemplated. These included some half-dozen projects for *in situ* recovery of synthetic oil from the oil sands of Western Canada on the scale of 1 300 to 1 600 cubic metres (8,000 to 10,000 barrels) per day and for enhanced recovery of conventional oil. Agreements were announced on the construction of two new plants in Saskatchewan for the purpose of upgrading heavy oil and crude bitumen to facilitate transportation and refining. In addition, Suncor and Syncrude were proceeding with expansion of their capacity for extracting synthetic crude from the oil sands obtained through open-strip mining techniques, while a proposal for possible establishment of a third tar-sands mining operation was also under active consideration.

The resurgence of plans for proceeding with a number of new energy projects in Western Canada, even if on a reduced scale, appeared to reflect a number of factors. These included the revival of economic growth, the sharp drop in the rate of inflation, the fall in interest rates (even though they remained high in real terms), the continuing stability of world oil prices, and—more directly—various forms of royalty and tax concessions granted by provincial and federal governments, together with loan guarantees in some cases, that were aimed at reinforcing the economics of the projects.

In mid-1984, an application was filed with the Board by Polar Gas Ltd. for a certificate authorizing construction of a 2 145 km (1,300 mi) pipeline for the transportation of natural gas from the Mackenzie Delta-Beaufort Sea area to Edson, Alberta, at an estimated cost of $3.3 billion. This replaced an application submitted in 1977, and later withdrawn, for construction of a pipeline to transport natural gas from the

High Arctic to Southern Canada. The company indicated that it envisages connection of a pipeline from the High Arctic with the proposed line south from the Mackenzie Delta as the eventual second-stage in its project. (The Board has had on hand an application by Foothills Pipe Lines (Yukon) Ltd. since 1979—never proceeded with—for construction of the Dempster Lateral to transport gas from the same area to join up with the main line of the proposed Alaska Highway Gas Pipeline at Whitehorse, which is yet to be constructed.)

In July 1984, heavy new responsibilities were imposed on the Board with the announcement by the government of a revised pricing policy that opened new opportunities for substantially reviving Canada's flagging exports of natural gas to the United States.

Under the new policy, Canadian exporters were given the option after November 1, 1984, of either adhering to the existing two-tiered price laid down by the government (in the range of $4.40(U.S.) to $3.40 per MMBtu) or of negotiating competitive new pricing arrangements with their U.S. customers, subject to the review of the Board and the ultimate approval of the Cabinet.

In its announcement, the government emphasized that exporters would be required to establish that any negotiated price would not be less than that paid by Canadians in the same circumstances and that the arrangements generally "will enhance the economic return to Canada, compared with the current system, and are in Canada's national interest."

The year 1983 witnessed a sharp turnaround in Canada's degree of self-sufficiency in crude oil and petroleum products as measured by the balance of its trade position. In that year, Canada recorded a net surplus in its international trade in crude oil and products of $2.3 billion, in contrast to a deficit position in several previous years (amounting to $3.4 billion in 1981). Overall, Canada had a favourable balance of trade in petroleum, natural gas and electricity of $7.4 billion, an increase of almost $2 billion over the previous year.

As the Board prepared to move into its second quarter-century, it had at hand a staff study issued in the latter part of 1984 assessing the outlook for much of that next 25-year period. Entitled *Canadian Energy Supply and Demand 1983-2005*, the report concluded that "there are reasonable prospects for Canada to be self-sufficient in oil," although this is "far from certain." Among the uncertainties affecting the outlook, the report listed the world price of oil, prevailing tax and royalty regimes, costs, and success in discovering new sources of oil in the frontier. The report concluded that Canadian production of light and medium

Future pipelines in the North Atlantic will have to be constructed under arduous wind and wave conditions and in some cases will have to be designed to be iceberg proof.

crude oil was likely to fall short of demand during the forecast period, leaving a requirement to be met by imports, but this shortfall could well be balanced by surplus production and export of heavy crude oil.

On average, the study forecast energy demand in Canada between 1983 and 2005 would grow at a rate of only 1.6 percent a year, down sharply from average annual growth of around 5 percent during the 1960s and 1970s. This decline would be accounted for by slower economic growth than during the earlier period and by more efficient use of energy. The report estimated that over the forecast period, the proportion of Canadian energy needs met by oil would drop from 43 to 30 percent, with virtually all of the requirement being met by increased consumption of electricity (rising from 18 to 24 percent) and natural gas (climbing from 25 to 31 percent).

SUMMING UP

From a small beginning following its birth in 1959, the National Energy Board came to play an increasingly important role over the succeeding 25 years in the massive development that has taken place in Canada's energy resources.

Over the quarter-century, the scope and extent of its activities have expanded significantly—in part because of the broadening of its legislative mandate by Parliament, but even more because of the enormous growth in the scale and complexity of energy issues in which the Board was involved, both as a regulator and as an advisor.

As a regulator, the Board's responsibilities have included the certification of interprovincial and international pipelines and international power lines, the licensing of gas and electricity exports and, since the early 1970s, exports of petroleum, and the regulation of the tolls of the oil and gas pipelines under its jurisdiction, which provide the essential financial underpinnings supporting their operation and growth.

No simple figures can fully convey the magnitude of the growth of the Board's involvement in energy issues. But some measure is perhaps conveyed by the fact that the number of certificates, permits, toll orders and other authorizations issued by the NEB in 1983 numbered more than 2,200, which compares with 285 in 1960, the first full year of its operation.

By 1983, there were more than 35 000 km of oil and natural gas pipelines under the Board's jurisdiction, more than three times the amount in 1960. Over the same period, the electrical transmission capacity between Canada and the United States increased from 1,500 megawatts to more than 11,000. Exports of natural gas climbed from 3.1 billion cubic metres in 1960 to a peak of 28.3 billion cubic metres in 1979 and then declined to 20.2 billion cubic metres in 1983. Oil exports soared from 7.1 million cubic metres in 1960 to a high of some 80.5 million cubic metres in 1973 and subsequently declined sharply as Canada directed a growing share of its production for domestic consumption. In 1983, oil exports amounted to 30.2 million cubic metres. Over this period, from 1960 to 1983, Canada's net exports of electricity increased from around 5 000 gigawatt hours to more than 35 000.

In its early years, the Board played a key role as the principal advisor to the federal government on energy matters, which was reflected in its active involvement in the formulation of the National Oil Policy in 1961 and the National Power Policy in 1963 and its subsequent involvement in various aspects of their implementation.

The Board's advisory role became somewhat more narrowly focussed with delegation of new responsibilities for energy in the mid-1960s to what was previously the Department of Mines and Technical Surveys and is now the Department of Energy, Mines and Resources. But it continued to be actively engaged in an advisory capacity both because of its broad knowledge of energy matters generally, its familiarity with the operations of many sectors of the energy industry, and its involvement as a regulator in respect of many of the energy

issues that came to the fore over succeeding years.

In the wake of the worldwide upheaval affecting all forms of energy that was touched off by the eruption of the Middle East crisis of 1973, the extent and intensity of the Board's activities escalated sharply. This train of events raised major new policy issues in Canada, including such matters as the volume and price of oil and natural gas to be made available for export, measures required to ensure Canada's own self-sufficiency, and the proposed construction of extensive new oil and gas pipelines aimed at helping to secure that self-sufficiency.

As the search for oil and gas stretched into the more remote corners of the frontier, prompted in no small measures by the perceived energy crisis, the NEB found itself increasingly concerned with the new technologies involved in the development and transportation of oil and gas from these areas and in finding ways to minimize the threat to the environment that they posed. By the same token, the Board also found itself compelled to take account of the social and economic concerns of those affected by these developments, particularly in the case of native people.

In sum, this first quarter-century has been busy and challenging, but also richly rewarding in the part that the National Energy Board has had the opportunity to play in the building of Canada.

Electrical Interconnections Canada - U.S.A.

An updated and abridged version of a paper prepared by E.S. Bell, A.J. Stremlaw and G. Yorke Slader for the Symposium on the Role of Electric Power in Meeting Future Energy Needs, sponsored by the United Nations Economic and Social Council and held in Delphi and Athens in May 1975.

The boundary between Canada and the United States of America is well known as the world's longest undefended border. Less well known is the fact that since the beginning of the century this border has been crossed by an increasing number of electric power lines.

The first transmission line across the border was a 12 kilovolt (kV) circuit built at Niagara Falls in about 1900. Entrepreneurs developing hydroelectric power on the river constructed this line, and later others, to market their power in the United States. Without such lines and the access they provided to ready markets, the early hydroelectric developments in Canada would undoubtedly have been delayed.

In the years that followed, additional lines were built across the border. Today there are a total of 75 lines, ranging in voltage from 115 volts to 735 kV.

The Canadian constitution gives each province jurisdiction over the natural resources within its boundaries. The production and distribution of electricity as well as other forms of energy are therefore controlled by the various provincial governments.

In most of the ten provinces, the electric power utility is owned by the respective provincial government. Of all the electric energy generated in Canada, about 90 percent is produced by these provincially-owned utilities.

Early in the century, major portions of several new hydroelectric developments were committed by contract to U.S. markets for long terms at fixed prices. The Canadian public became concerned over this disposition of the nation's resources, with the result that in 1907 the Parliament of Canada passed the Electricity and Fluids Exportation Act. This Act established federal jurisdiction over the export of electricity. It required that anyone wishing to export power from Canada must first obtain a licence.

The 1907 Act also provided for an export duty on electric energy. A duty of 0.3 mill* per kilowatt hour (KW.h) was imposed on exports from 1925 until 1963. There is no export duty today.

In 1959, Parliament replaced the 1907 Act by the National Energy Board Act. This Act established the National Energy Board to act as advisor to the federal government on all matters related to energy, and to exercise regulatory functions in the fields of gas, oil, pipelines and electricity. In the field of electricity, its jurisdiction is limited to the licensing of exports of energy from Canada and the regulation of power lines crossing the international border, including—as of 1983—such new interprovincial interconnections as may be "designated" by the Governor in Council. All other aspects of the supply of electricity remain under provincial control.

*A mill is a thousandth part of a dollar.

International Interconnections

Seven of the ten Canadian provinces border on the United States. Of this number, six provinces—namely, New Brunswick, Quebec, Ontario, Manitoba, Saskatchewan and British Columbia—have high-voltage system interconnections with neighbouring utilities in the United States. A total of 35 circuits are in service operating at voltages of 69 kV and above, and 5 more are planned over the next decade. A list of these international power lines, arranged in order of the date of construction, is given in Table 1.

The line capacities listed are nominal ratings; in practice the capacities are affected by such considerations as stability, system loading and reliability criteria. In general, the transfer capability of each utility's

TABLE 1

INTERNATIONAL POWER LINES 69 kV AND ABOVE
CANADA - UNITED STATES

Interval	Province	State	Year Installed	Voltage (kV)	No. of circuits	Capacity (Megawatts)
Before	Ontario	New York	1915	120	2	200
NEB	Quebec	New York	-	120	2	200
established	Ontario	Michigan	1953	230	2	800
	Ontario	New York	1955	. 69	2	75
	Ontario	New York	1958	230	1	300
1960-1969	New Brunswick	Maine	1960	69	2	85
	Ontario	New York	1960	69	2	75
	Ontario	New York	1960	230	2	800
	New Brunswick	Maine	1964	69	2	85
	British Columbia	Washington	1964	230	1	300
	New Brunswick	Maine	1968	69	2	85
	Ontario	Michigan	1968	345	1	600
	British Columbia	Washington	1968	500	1	700
1970-1979	New Brunswick	Maine	1970	345	1	500
	Manitoba	North Dakota	1970	230	1	150
	British Columbia	Washington	1971	230	1	350
	British Columbia	Washington	1973	500	1	700
	Ontario	Michigan	1973	500	1	900
	Manitoba	Minnesota	1976	230	1	175
	Quebec	New York	1976	735	1	1200
	Manitoba	Minnesota	1977	500	1	100
	Quebec	Vermont	1977	120	1	100
	New Brunswick	Maine	1978	Uprating to 138	1	70 (Net increase)
	Saskatchewan	North Dakota	1979	230	1	150
1980-1984	Ontario	New York	1983	345	2	2500
Expected	Quebec	Vermont	1985	120	1	200
additions	Quebec	New York	1985	Back-to-back HVDC	1	1000 (Increase)
	Quebec	New Hampshire	1986	± 450 DC	1	690
	New Brunswick	Maine	1986	Upgrade	-	100 (Increase)
	Manitoba	Nebraska	1988	500	1	1000

interties with the United States is greater than the capability of its ties with neighbouring Canadian provinces.

Historically, one of the main reasons for building international power lines was to sell surplus energy. As Canadian power systems are predominantly hydroelectric, surplus energy has always been available during periods of high river flow. Export sales of such energy on an at-will, when-available basis can provide a hydro system with an important contribution to its net income. The energy is produced from water that would otherwise be spilled over the dams, and the incremental cost of generating and transmitting the energy is negligible.

More recently, energy from surplus thermal generation capacity in Canada has been sold to displace more expensive generation in the United States, increasing the amount of exports.

In recent years, the number and total capacity of major system interconnections between the two countries have increased considerably. They have been installed, not only to export surplus energy, but also to enable Canadian and United States utilities to participate in the many advantages that accrue from being associated with major power pools.

Emergency support rendered in either direction by power systems interconnected across the international border can be of immense value. An example occurred in January 1972 when a severe winter storm caused the loss of two 500 kV supply lines in the Rocky Mountains. A major interruption to the British Columbia system was avoided only because of the immediate support rendered by the United States members of the Northwest Power Pool. In the reverse direction, Ontario Hydro and Hydro-Québec have several times provided emergency power for utilities in the State of New York.

In addition to the major transmission lines listed in Table 1, there are a number of lower voltage lines crossing the international boundary. Both Canadian and American utilities sell electricity to small customers just across the border, where such customers are remote from the nearest power system in their own country. This practice of border accommodation has resulted in a number of minor distribution lines crossing the border. Some feed only a single farm, customs office, private residence or summer cottage.

Coordination of Interconnections

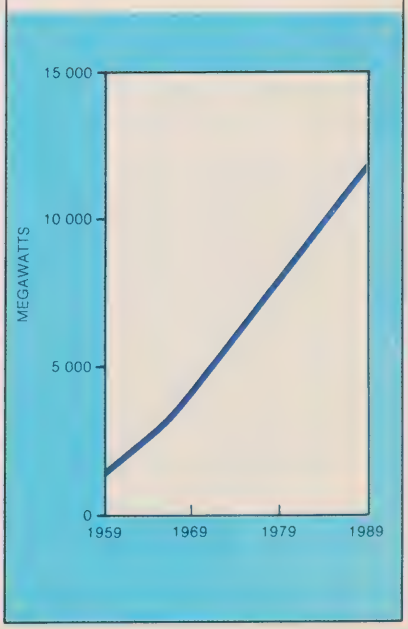
The coordination of interconnections between Canadian and United States systems is handled by the utilities concerned, either through inter-utility committees or through the North American Electric Reliability Council (NERC).

NERC is a voluntary organization which was formed in 1968 for the purpose of augmenting the reliability and adequacy of bulk power supply by the electric systems of North America. NERC consists of nine regional councils whose memberships comprise essentially all the power systems in the United States and Canada except for Newfoundland, Prince Edward Island, Nova Scotia and the Territories.

International Trade in Electric Energy

The quantity of energy transmitted over the international interconnections naturally varies from year to year. Since World War II, exports of electric energy from Canada have run within a range of about 2 to 10 percent of total Canadian generation, and in recent years have greatly outweighed imports.

CAPACITY OF ELECTRICAL INTERCONNECTIONS BETWEEN CANADA & U.S.A.



In 1983, Canada's favourable balance of trade in electricity exceeded $1.2 billion. The extremely high and growing level of exports in the last few years is a reflection of the significant opportunities for displacement of high-cost, oil-fired generation as well as increases in costs associated with building new generating facilities in the United States.

Naturally, most transactions over the international interconnections are with the U.S. utilities adjacent to the Canadian border. Nevertheless, some energy sales extend further: energy from Quebec has been sold to Consolidated Edison Company in New York City, and energy from British Columbia is often transmitted to the State of California.

Bulk energy prices are by no means standard across the continent. They are highest in the East, where systems in the United States have predominantly thermal generation, much of it oil-fired. Prices are lowest in the Midwest, where the systems in both countries use low-cost coal.

With each passing year, the transactions between Canadian and U.S. utilities grow in magnitude and complexity. We have come a long way since the first 12 kV power line was built across the international boundary at Niagara Falls three-quarters of a century ago. There is every reason to believe that the future will bring more and stronger interconnections and even greater cooperation between the electric power utilities of the two countries.

The Columbia River is a major source of hydro power for British Columbia and neighbouring Washington State. In 1959, British Columbia exported some 1.5 million kW.h of electricity. Annual exports have increased since then to more than 3 billion kW.h.

Former Board Members

As originally constituted in 1959, the Board consisted of five members appointed by the Governor in Council. One was designated to be Chairman and one Vice-Chairman.

During the 25 years since then, the increasing responsibilities laid upon the Board by Parliament, combined with the considerable growth of the energy industries, have necessitated three increases in the size of the Board.

In 1970, by amendment to the National Energy Board Act, the number of members was increased to seven and a single position of Associate Vice-Chairman was created.

In 1974, by a further amendment to the Act, the membership was raised to nine and the number of associate vice-chairmen to two.

In 1983 the Board was increased to its present size of eleven, including three associate vice-chairmen.

The Board owes a great debt of gratitude to those five founding members who established the organization in 1959 and steered it through its humble beginnings. This chapter of our booklet is dedicated to the founding members and to those who followed in their footsteps but have since retired.

IAN N. McKINNON

Mr. McKinnon was the first Chairman of the National Energy Board. He held that position from his appointment in 1959 until his retirement in 1968.

Before joining the Board, he had been Chairman of the Alberta Oil and Gas Conservation Board for 10 years.

At NEB , Mr. McKinnon had a well deserved reputation for drive, economy and efficiency. From the start he set a hard pace, and moulded the infant Board into a lean and efficient organization.

He died in December 1976.

DR. ROBERT D. HOWLAND

Dr. Howland was appointed Vice-Chairman of the Board at its inception in 1959 and became Chairman in 1968. He retired in 1973.

Immediately before joining the Board, he was a member of the Borden Royal Commission on Energy, which put forward a number of recommendations on the role of the proposed new regulatory agency.

At NEB, Dr. Howland's particular interest and involvement was in connection with the oil industry. He was active in the creation of the National Oil Policy of 1961.

He is now living at Dunrobin, near Ottawa.

DOUGLAS M. FRASER

Mr. Fraser was one of the five founding members of the Board appointed in 1959. He became Vice-Chairman in 1968 and retired in 1976.

Immediately before joining the Board, he was Director of the Energy Studies Branch of the then Department of Trade and Commerce. In that capacity, he was heavily involved in the initial drafting of the legislation creating the NEB.

At the Board, Mr. Fraser became the member most closely involved in the regulation of natural gas. He pioneered the first TransCanada rate case in 1971-1972, the methodology of which is still valid today.

Mr. Fraser is now retired and living in Ottawa.

H. LEE BRIGGS

Mr. Briggs was one of the founding members of the Board appointed in 1959. He retired in 1971.

Before joining the Board, he had wide experience in the electric power industry, rising to the position of General Manager of the Winnipeg Hydro-Electric System and later General Manager of the British Columbia Power Commission.

At NEB, Mr. Briggs' prime interest was in electric power. He was the principal author of the National Power Policy of 1963, which is still in effect and relevant today after 21 years.

Mr. Briggs is now retired and living in Victoria, British Columbia.

JULES A. ARCHAMBAULT

Mr. Archambault was one of the original members of the Board appointed in 1959. He resigned in 1960.

He had broad engineering experience with several Canadian corporations and during World War II with the federal government. Prior to joining NEB, he was a member of the Board of Research on traffic and transportation problems of the City of Montreal, and President of Canit Construction Company Limited.

After leaving the Board, Mr. Archambault became Chief Engineer of the Montreal Transportation Commission. He died on March 31, 1980.

MAURICE ROYER

Mr. Royer was appointed a member of the Board in 1960, replacing Mr. Archambault. He retired in 1970.

Although strictly-speaking not a founding member of the Board; Mr. Royer is regarded as having been one because of Mr. Archambault's short stay.

Mr. Royer had an extensive engineering background and prior to joining the Board was Professor of Civil Engineering in the Faculty of Science of Laval University. He is believed to have designed the Governor's Walk in Quebec City.

Mr. Royer died on March 17, 1977.

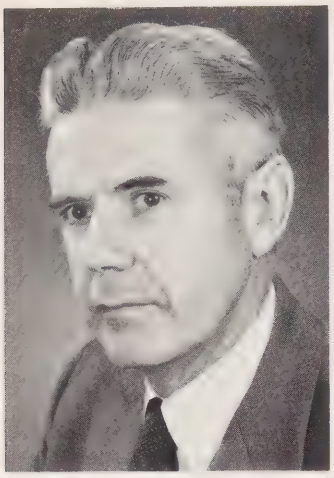
JACK G. STABBACK

Mr. Stabback became the fourth Chairman of the National Energy Board.

He joined the Board's staff in 1964 as Chief Engineer. He was appointed a Board Member in 1968, and became Associate Vice-Chairman in 1974 and Vice-Chairman in 1976. He was Chairman from 1978 until he retired from the Board in 1980.

Mr. Stabback had previously served with the Oil and Gas Conservation Board of Alberta. He brought with him extensive knowledge of the oil and gas industries.

He is now Senior Vice-President, Global Energy & Minerals Group, with the Royal Bank of Canada in Calgary.



NEIL J. STEWART

Mr. Stewart was the first lawyer to be appointed to the Board. He served as a Member and Associate Vice-Chairman from 1971 to 1974.

He had wide experience in the petroleum industry. Before joining the Board, he was Vice-President and Treasurer of Amoco Canada Petroleum Company Ltd. of Calgary.

Mr. Stewart is now Vice-President, Marketing and Corporate Affairs, of Amoco Canada in Calgary.

A. COSSETTE TRUDEL

Mr. Cossette Trudel was appointed a Board Member in 1970 and retired in 1977.

He had previously served with the Electricity and Gas Board of Quebec, for 12 years as a Commissioner and for 13 years as Vice-President.

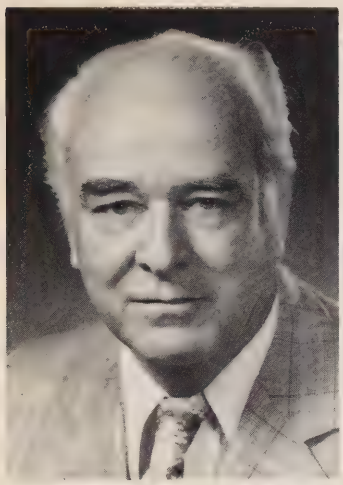
Mr. Cossette Trudel is now retired and living in Cookshire, Quebec.

MARSHALL A. CROWE

Mr. Crowe was the third Chairman of the National Energy Board. He was a Member and Chairman from 1973 to 1977.

Mr. Crowe's career included 14 years with the Department of External Affairs, 6 years as economic advisor with the Canadian Imperial Bank of Commerce, and 6 years as a senior government executive. Immediately before joining the Board, he was Chairman of the Canada Development Corporation.

He is now a consultant in Ottawa.



ROBERT A. STEAD

Mr. Stead was a Member of the Board from 1976 until he retired in 1979.

He is best remembered for having served longer than anyone else as Secretary of the Board. He held that position for 11 years, from 1965 to 1976. Because of this background, he was probably more familiar with the working of the Board than any other member.

Mr. Stead is now retired and living in Ottawa.

Temporary Board Members

Under subsection 3(6) of the NEB Act, as it existed from 1959 to 1983, if any Member became unable to perform his duties, the Governor in Council could appoint a temporary substitute Member. Over the years, this provision was used three times:

G. Warren Armstrong, Secretary of the Board, was appointed a temporary substitute Member for the month of July 1960. He retained his position as Secretary during that period.

Marc E. LeClerc, a Director General of the Board, was appointed a temporary substitute Member from 19 September 1974 to 19 November 1974, primarily to sit on a hearing dealing with the tolls to be charged by TransCanada PipeLines Limited. During this period, he relinquished his regular staff duties.

Robert A. Stead, Secretary of the Board, was appointed a temporary substitute Member from 12 February 1976 to 30 June 1976, primarily to sit on a hearing dealing with the tolls of Interprovincial Pipelines Limited. During this period, he relinquished his duties as Secretary and, at the end of the period, he was appointed a regular Board Member.

In 1983, the NEB Act was amended and subsection 3(6) was changed to allow the Governor in Council to appoint up to six temporary Members at any one time without the prerequisite of a regular Member being incapacitated. To date, this new provision has been used as follows:

Edward S. Bell, the Director of the Electric Power Branch, was appointed a temporary Member from 1 April 1983 to 31 August 1983, primarily to sit on a panel hearing an inquiry into the rates charged by the Northern Canada Power Commission. While he was a temporary Member, Mr. Bell relinquished his duties as Director.

Reminiscences

In this chapter, we present six articles contributed by former Board Members. They vary in length from comprehensive reminiscences to a simple anniversary message.

In the first feature, "Early Days", Douglas Fraser takes us behind the scenes in the formation and early development of the Board. In "My Four Years", Marshall Crowe speaks of some of the contentious issues that came before the Board during his chairmanship. In "Fifteen Years at the Board", Jack Stabback comments on the National Oil Policy of 1961, the oil crisis of the mid-1970s, and the Northern Pipeline hearing. In "The Electrical Beginnings", Lee Briggs talks of exchanges between power utilities, the National Energy Policy of 1963, and the Northeast Blackout of 1965. In "Congratulations", Robert Howland sends his best wishes to the Board and its staff. In "From Secretary to Member", Robert Stead compares the undertaking as he found it in 1964 with the organization today.

Early Days

by
Douglas M. Fraser

The creation of the NEB was not a sudden flash of inspiration. It was more an adaptation to foreseeable needs of a long history of regulatory law. It brought together the regulation of exports of power and natural gas established by an Act of 1907, the importation of gas tacked onto the export legislation in 1954, and the regulation of interprovincial and extraprovincial pipe lines enacted in 1949.

In respect of powers of expropriation, the NEB Act, like the Pipe Lines Act before it, incorporated by reference the body of law gradually built up under the railway legislation administered by the Board of Transport Commissioners for Canada; this had been the subject of much jurisprudence in Canada and the United Kingdom, so the revision of the statutory language would be a delicate and complex task. The depth of the roots of the Act was brought home to us when the Supreme Court reversed us on a decision relating to the respective rights and obligations of a quarry and a pipe line where their operations affected one another; the decision turned on certain sections of the U.K. Railway Act of 1841, and interpretations of them by British as well as Canadian courts.

The more immediate origins of the NEB Act were often said to be in the two reports of the Borden Commission. It is true that many of the recommendations of that Commission, particularly those of the first

report, were reflected in the Act. The Commission performed a valuable service, aside from its specific recommendations, in providing an evidentiary record on which persons interested in energy matters could base informed and rational analysis, in contrast to the partisan polemics which had overwhelmed public discussion of energy policy issues during and after the pipe line debate of 1955-1956. The Commission also provided a means by which the Diefenbaker government could make the necessary transition from some of the positions its members had taken while in opposition to those which on becoming the government it found appropriate to the development of energy policy. The Conservatives and the NDP had both for some years advocated some form of national agency for the regulation of energy (with different views as to its functions). The Liberals had been reluctant to set up a new regulatory agency, dominated in this respect by C.D. Howe's view that a decisive and well-advised Minister was a far more effective means of getting on with the development of the nation's energy industries than a Board with its time-consuming procedures and burgeoning regulations.

The pipe line debate changed that view. In the last conversation we had before Mr. Howe went to Lakehead to wage his losing campaign in 1957, he told me that as soon as he came back he wanted us to start preparing legislation for a National Energy Board because it had become clear to him that no Minister could be expected to get timely approval from Parliament for a major energy construction or export development, however sound and urgent it might be. He had concluded that if energy projects of national importance were to be dealt with on their merits, it was essential to establish a judicial process for that purpose. Had the Liberals been returned in 1957 (unlikely in retrospect as that may be) and had Mr. Howe been supported by his colleagues, there might have been an Energy Board in operation before 1959.

What actually happened was that the new government appointed the Borden Commission and deferred until it reported all energy decisions that were not immediately essential. As soon as the First Report of that Commission was published, in the last week of October 1958, I, as Director of the Energy Studies Branch in the Department of Trade and Commerce, was instructed to convene an interdepartmental working group representing all departments and agencies having responsibilities in the energy field, for the purpose of preparing legislation to establish a National Energy Board for consideration by a special Cabinet Committee under the chairmanship of the Hon. Gordon Churchill, Minister of Trade and Commerce. We were told the Bill must be ready for introduction as the first order of business in the session to commence in January 1959. We did it by making impossible demands on all concerned; all of it would have come unstuck without the brilliant draughtsmanship provided on a seven-days-a-week basis by Elmer Driedger, then Associate Deputy Minister of Justice, with support at critical times from Wilbur Jackett, then Deputy Minister. The Cabinet

Committee worked equally hard, and perhaps the most rewarding aspect of that experience was to see the gradual growth of trust by Ministers in the public servants, all of whom were at first assumed by some Ministers to be subversive Liberals.

The debate in the House was heated and protracted, but constructive, with many amendments accepted by the Minister or proposed by him to meet a substantive criticism. But the Act was the last given Royal Assent at the end of that session.

It has always seemed to me to be much to the credit of that government, thirsty from long wandering in the desert of opposition and hot for the privileges of power, that none of the five Members appointed to the Board was politically identifiable. Mr. Churchill, in inviting me to become a Member, put it something like this:

> "Ian McKinnon is clearly the best and most experienced man in the country in the regulation of the oil and gas industries, and he is and always will be an Albertan. Bob Howland's recent experience with the Gordon and Borden Commissions is valuable, as is his earlier work on coal on the Carroll and the Saskatchewan Commissions; also he is regarded as representing the Maritimes because of his public service in Nova Scotia. Jules Archambault gave distinguished wartime service as Associate Transit Controller, and he is an engineer with wide experience, particularly in public utilities, in Quebec. Lee Briggs has an outstanding record as a manager of public utilities in Manitoba and British Columbia, and is highly regarded in the electrical engineering field. While you are from Manitoba, and have worked in Nova Scotia and in the pipe line industry, the most relevant thing is that for the last four years you have been advising successive Ministers on energy policy matters. I want you to think of yourself as representing not any regional interest, but the public interest of Canada."

I tried not to forget that, nor could I forget that in each case what the Minister emphasized was public service.

It was no accident that there were no lawyers among the original appointees. The view accepted by the government was that, while sound legal advice and scrupulous observance of natural justice were essential, it would be desirable for the Board to minimize formality and to develop its procedures so as to get on with the job as quickly as possible, rather than to fall into formalized and protracted procedures engrained in those brought up in the traditions of the judicial system. It was never expected that lawyers would be excluded from future membership, although, as it turned out, the first lawyer to be appointed was Neil Stewart in 1971.

Jules Archambault had accepted appointment under a misapprehension that he could discharge his duties on a part-time basis, commuting from Montreal. The Act provided that Members must devote their whole time to the Board's affairs and must reside within 25 miles of

Ottawa—a deliberate inoculation against the "Tuesday to Thursday syndrome". To my regret, since I had found him a congenial colleague during wartime work, Mr. Archambault chose Montreal over Ottawa and resigned. His successor, Maurice Royer, brought a distinguished experience in the practice and teaching of engineering, and a remarkable talent for rooting out ambiguity and imprecision in English as well as in French. His test was simple, and still valid: if original text, in whichever language, cannot be clearly and precisely translated into the other, then the original must be clarified.

If any uncertainty existed about the completeness of the commitment of Members' time to the Board, the Chairman soon dispelled it. The first meeting of the Board took place on August 14, 1959, in a conference room in the then Trade and Commerce building. R.B. Bryce, Clerk of the Privy Council, administered the oath of office to each of us. Mr. McKinnon's first words, delivered with his utmost intensity, were, in effect:

> "Let us be clear from the outset about one thing: this is a *working* Board. We have a tremendous backlog of applications of national importance awaiting us, and we probably always will have. But we are going to deal with these applications as quickly as humanly possible, given that we must act judicially on a full evidentiary record, and Board Members are going to set an example for all staff by their diligence in getting the job done, and well done."

There was no argument. One did not argue with Ian McKinnon about the urgency of getting the job done.

The scramble to put together the beginnings of a working organization had already begun. Public Works, having tried to fob off on us every condemned building in their inventory, agreed to an unprecedented lease arrangement for space in the apartment building under construction at 969 Bronson Avenue, with provision for a hearing room and additional office space to be built the next year on stilts over the parking area. The annex pipes still freeze every winter, as did its inmates, but it saw us through the period until we could get adequate space in the new Place de Ville.

Staff was begged, borrowed and recruited. Trade and Commerce lent us Wiley Millyard from the Foreign Trade Service to act as Secretary, and what he couldn't arrange for us by diplomacy he liberated by use of his wartime naval skills. After Warren Armstrong became Secretary, Millyard became Consul General in various U.S. centres. Allan Winship was also lent to us to help with administration; later he served in the Privy Council Office and is now in private legal practice. Gerry Green, Bob Cumming and Al Monaghan, who had worked with me in the Energy Studies Branch at Trade and Commerce, latterly on loan to the Borden Commission staff, came for a time to the NEB Economics Branch, then returned to their notable career patterns in the international field.

Several others who had worked with the Borden Commission also joined us, some briefly, others, like Bill Trick and Pat Skelton, for the duration. Mrs. Skelton had been my right hand at another Royal Commission before going to the Borden Commission, and remained indispensible to me until I retired. Jean Burns came from the National Harbours Board to be the Chairman's secretary, at once a fountain of knowledge and pillar of discretion. Dorothy Mackenzie transferred permanently from Trade and Commerce to the NEB. I have forgotten whence Ab Renaud came, but it was our good fortune that he did. Don Midwinter, who had been working on pipe line engineering matters at the Board of Transport Commissioners, transferred to our embryo Engineering Branch.

The Board of Transport Commissioners reluctantly agreed to lend us its financial advisor, Bill Hogben, to perform the same function for us during the first joint hearing of the accummulated pipe line and gas export applications; we rewarded the Commission's generosity by persuading Bill to stay with us permanently, that is until a heart attack, almost certainly due to overwork, forced his retirement in 1966. He was not our only casualty: Grant Richardson, who came from Ontario Hydro to be our senior electrical engineer, died of a heart attack in 1968 while still a young man of great promise.

We used our best persuasion on petroleum and pipe line companies to get their cooperation in recruiting able young men from their "up-and-coming" lists, and to seek them out from all our contacts. They did not all come at once, or stay permanently, but examples were Bob Pfister from Imperial, Bill Hopper from Imperial, Peter Scotchmer from Shell International, Dan Harris from Westcoast, Stan Ironstone from Consumers' Gas, Boyd Gilmour from TransCanada, Roland Priddle from Shell, and Bill Scotland from Texaco.

It is invidious to name some individuals, because inevitably one omits others as worthy and memorable. But this random recollection would be especially defective without particular mention of two sources of support. The Alberta Oil and Gas Conservation Board not only provided Ian McKinnon as our Chairman; it consented to our outright recruitment of one of its outstanding young engineers, Jack Jenkins, and it lent to us, to act as Chief Engineer during the initial period, its senior gas expert, Jack Stabback. He could not at first be persuaded to remain with us, but a few years later he was induced to come back, with benefits to us well known to those who have any familiarity with the Board's history. Over time we recruited a good many other capable people from the Alberta Board, and we also drew extensively on its experience, its data base, and its geological cores, records and analyses.

The other source of support which requires special mention is the Washington Embassy, or more precisely Norman Chappell. Virtually every Canadian energy problem or project has a U.S. aspect. Also, the United States, having developed its oil and gas, and regulatory systems

related thereto, before we did, had much to teach us about how to go about these matters, or not to go about them. In the early 1950s, Chappell had been asked by the Ambassador to take on a watching brief on energy matters of interest to Canada, in addition to his normal duties as Director of the Washington office of the Canadian Department of Defence Production, a major assignment in those days of joint defence production planning. Chappell took on the energy work with such effect that by the latter 1950s he had established among the U.S. agencies a degree of confidence in his knowledge and discretion that was exemplified for me by sitting in his office listening to him take calls from a whole series of U.S. departments and agencies asking him what was really going on about some internal U.S. energy development. Before the Bill to establish the NEB was completed, he arranged for Bill Connole, a Member of the Federal Power Commission and an expert on U.S. law and jurisprudence relating to natural gas and electrical power, to spend several days in Ottawa at the disposal of Ministers and officials for frank and very helpful discussions about the problems and pitfalls awaiting the NEB. Before and after the establishment of the Board, Chappell kept Ottawa fully and almost instantly informed about energy developments in the United States of interest to Canada; he opened all doors and overcame all difficulties when we needed contacts or information in Washington. In his analyses of the probable course of events, he batted very close to 1000. When the Board was set up, we persuaded External Affairs and other affected departments that he was too valuable to be rotated to other posts, as would have been normal in a foreign service career, and so he remained—at lower ranks than he would have reached elsewhere—to be Canada's invaluable energy expert in Washington until his recent retirement, fittingly accompanied by his appointment to be an Officer of the Order of Canada.

The formal regulatory life of the Board began with the opening of the first joint hearing on January 5, 1960. The period of preparation for this was utter madness, with Fred Lamar and our special counsel for that hearing, Miles Patterson of Calgary, trying night and day to bring legal discipline, order and form to all the technical, economic, financial and policy questions that the applications involved. There were no exact precedents, our procedures were still in a tentative stage of evolution, and many of us were totally inexperienced in the regulatory and quasi-judicial process. Somehow we pulled our preparations together for the appointed day, sat down in the borrowed court room of the Board of Transport Commissioners in the old Union Station, and opened the first page of the public record of the Board's first quarter-century. Looking back now at that quarter-century, one can think of many things that one might have done better, or differently, but from that first transcript and those first Reasons for Decision, one can clearly see the willingness to listen, and the determination to get it right, that we all felt on that first day. May it so continue.

Memory is selective and deceptive. These notes are recollections and impressions, not scholarship. Others will recall other things as more important, or the same things differently. Errors and omissions I regret, but I have no regrets about how we came together, and worked and fought, improvised and ventured, compromised where conscience permitted, and withstood all challenges where conviction dictated. In the end, I believe we met our essential goals: to provide informed advice to government on designated policy matters, and to establish a framework of regulatory jurisprudence and practice within which the objectives of public policy on energy and the enterprise of the industries under the Board's jurisdiction could be constructively reconciled. In later years, sources of energy policy advice have proliferated, and new administrative machinery has reflected changes in the role of government in the energy industries, but the early years of the Board established standards that have not yet been excelled.

My Four Years

by
Marshall A. Crowe

In various capacities in the federal public service, and particularly as Deputy-Secretary to the Cabinet, I had dealt with the National Energy Board on many occasions before I was appointed its Chairman in the fall of 1973. The first two Chairmen, Ian McKinnon and Bob Howland, whom I succeeded, and another original Board Member, Doug Fraser, had been personal friends for a long time. I, therefore, knew a good deal about the quality of the NEB and took on the job as Chairman with confidence in the dedication and ability of the Board and its staff. Then, as now, the staff was small in number but outstanding in practical knowledge and experience of the various branches of our energy industries. I was also fortunate to have as my secretary, Jean Burns, who had served the first two Chairmen and whose experience and knowledge of the Board's work was a great help to me.

The period of my chairmanship, from 1973 to the end of 1977, saw many complex, urgent, and contentious issues come before the Board. The oil embargo of 1973, the eruption of world oil prices, the long and fiercely contested Northern Pipeline hearings, and a thorough review and revision of natural gas export pricing then still mainly under NEB jurisdiction, were a few of the issues with which we were heavily engaged. In a period of scarcity of supply of both oil and gas, and intense competition to obtain pipeline certificates and export licences, it was not surprising that interested parties in Board hearings began to take more advantage than they had in the past of their right, in certain

circumstances, to seek judgments in the courts in support of their goals. The Board was usually, but not always, sustained in such appeals, and in any event the process of seeking judicial review, within the limits allowed by the law, is a perfectly legitimate and proper part of our administrative law tradition.

On the fundamental issue of the Board's independence from the government, in the exercise of its quasi-judicial functions, there was never to my knowledge any pressure from the one side nor any inclination to tolerate it on the other side.

Fifteen Years at the Board

by
Jack G. Stabback

Upon retirement, one is perhaps entitled to the luxury of reflection upon the past. In looking back upon my 15 years of association with the National Energy Board, it is with a sense of satisfaction of having been involved with a vibrant industry during a period of rapidly changing environment. The Board, perforce, evolved along with the energy industry subject to its overview and regulation.

Three specific matters stand out in my mind, although many others would justify individual comment. The first is the administration of the National Oil Policy, introduced in 1961. The policy, in effect, reserved the Canadian market for crude oil west of the Ottawa Valley for domestic production and, by encouraging additional exports of crude to the United States, sought to achieve stated levels of Canadian crude oil production.The government's policy having been stated, it was left to the Board to administer through negotiation with U.S. authorities, consultation with Canadian industry, and policing petroleum movements across the Ottawa Valley line. The outstanding cooperation of industry made this policy effective on a voluntary basis during the 1960s.

The second reflection is related to the abrupt change in international oil supply circumstances in the mid-1970s. Again, this required the close cooperation of industry and government to provide assurance of petroleum supplies to meet Canadian requirements. Until legislation was introduced to establish the Petroleum Suppliers Allocation Board, the coordination of industry activities was the responsibility of the NEB.

The third highlight in my service with the Board would undoubtedly be presiding over the Northern Pipeline hearing – that marathon proceeding involving so many parties and dealing with such a wide range of evidence. The excellent relationships between panel Members,

Board counsel and staff made what seemed at the outset to be an impossible task, 'do-able' within a reasonable time frame.

The Board has shown its mettle over its quarter-century life and I am sure will be able to deal with all energy matters under its purview no matter what changes there may be in the Canadian energy scene.

The Electrical Beginnings

by
H. Lee Briggs

The National Energy Board Act of 1959 was introduced into Parliament by the then Minister of Trade and Commerce, the Hon. Gordon Churchill. It was passed into law early in August 1959.

Apparently the Minister had been informed that one H.L. Briggs had written and published in Canadian and U.S. periodicals a number of technical articles dealing with power utility high-voltage interconnections and the nature of the resulting power contracts which had to be made between the utilities involved.

In 1928, I had graduated in electrical engineering from the University of Manitoba. By 1952 I had been made General Manager of the Winnipeg Hydro-Electric System and in 1955 had become the General Manager and Chief Engineer of the (former) British Columbia Power Commission.

One of the professional articles I wrote was published in October 1950, in the U.S. magazine, *Electric Light and Power.* The article was entitled "Inter-Utility Electrical Transfers Systematically Classified". It was an analysis of power transfers of every nature that could be made between two, three or many power utilities. This analysis appeared to be rather widely accepted by both the technical and the business people within both the Canadian and U.S. power industries.

This technical article enumerated and described five distinct categories of power transfers that were fully comprehensive of power transactions between electric utilities themselves, as distinguished from power utility sales to power consumers. These five categories were identified as:

- Sales transfers
- Equichange transfers
- Storage transfers
- Adjustment transfers
- Carrier transfers

Sales transfers, of course, require money payments by the receiving utility.

Equichange transfers imply an energy loan by one utility to some interconnected utility, the loan being repaid by the subsequent return of the same total value as the value of the energy that had been supplied initially.

A storage transfer is a transfer of available output made from one to a second utility, when carried out in such a manner and timed to result in the storage for an extended period, of a corresponding quantity of energy in hydro reservoir capacity which otherwise would be unused. Storage transfers are conservation measures that enable the greater use of hydro reservoir capacity. When a storage transfer is returned, double generation has not occurred because each utility will have generated its own requirements only once.

Whether the above noted article had ever come to the attention of the then Department of Trade and Commerce, or to the notice of its Minister, is unknown. That Department had theretofore administered the "Exportation of Power and Fluids and the Importation of Gas Act". This older Act had among other things required licences "for the importation of gas as well as for the exportation of power and fluids". It also required "the imposition of export duties on power exported from Canada". In any event, when the National Energy Board was created in 1959, I was appointed one of its five original members. From then until I retired in 1971, I maintained a particular interest in the electrical work of the Board.

The classification of the power transfers implicit within the new National Energy Board Act of 1959 fitted the Briggs classification system of 1950 for inter-utility electrical transfers like a glove. Thus, the Regulations that had to be prepared in respect of the new 1959 Act fell directly into place within the earlier classification system. The regulations were prepared accordingly by the Electric Power Branch of the new Board, recommended by that Board, and in due course authorized by the government.

Over the intervening years, the National Power Policy as modified from time to time by the government, has been expanded substantially. For example, in 1963 the Minister, the Hon. Mitchell Sharp, announced that in order to take full advantage of possibilities for the development of abundant electric power throughout Canada at the lowest possible cost, a newer, more flexible power export policy would be adopted to encourage large-scale Canadian power developments by permitting the longer term exportation to the United States of substantial blocks of power.

The purpose of permitting these larger, longer term exports was to enhance the possibilities for the immediate development of major Canadian hydro power sites. Such power exports would improve Canada's balance of payments position; they would justify the strengthening of power transmission interconnections between the

provincial power utilities, and justify heavier power transmission interconnections with the growing power utility networks south of our international boundary.

It might be noted here that the near-absolute dependability of all electric power supply systems across the length and breadth of our country cannot properly be taken for granted, as most of us tend to do today. Nearly perfect dependability can come about only from the most careful planning, construction, and maintenance of each component system, its interconnection linkages, and from meticulous consideration of the multitudes of possibilities for line or equipment breakdowns within each one of the component systems.

The most spectacular and least expected circumstance which occurred during those early years of the National Energy Board operations was the "Northeast Power Blackout" that began suddenly the evening of November 9, 1965.

On the instruction of the Chairman of the National Energy Board, within hours I flew to Washington, D.C., to collaborate with the Federal Power Commission and its senior staff and to assist in the multitudes of higher level coordinations required for restoring electric service to the immense regions involved in both our countries.

That flight over thousands of square miles of well-populated yet blacked-out countryside in several Northeastern States, except for those mere speckles of light here and there from the few farmyards or villages which by then had been able to get their own small standby generating units into service, will never be forgotten.

Some three days were required to restore electric service throughout the immense area that had suffered virtually complete interruption. A number of the extended outages were due to further burnouts of small generators and overhead lines when local operators permitted excessive loadings so that customer service would be restored at the earliest time possible.

Congratulations

by
Robert D. Howland

I should like to congratulate and extend best wishes to the Board and staff as they celebrate the 25th Anniversary of the Board.

It was my pleasure to have shared the experience of the Board in its earlier years. They were challenging and taxing at times, but pleasant, partly because conditions were right for the appointment and secondly because of the high calibre of my colleagues and the staff.

It is clear from the remarks of Geoffrey Edge, the current Chairman, that the same pleasant atmosphere persists in the Board. This augurs well as it provides for the full application of the Board's capabilities to its important work.

From Secretary to Member

by
Robert A. Stead

The National Energy Board has survived for a quarter of a century. Indeed, it is much more than a matter of survival; it is a demonstration of growth—in size, in capability and in responsibility—in response to a need for and recognition of the value of its services.

By 1964, when I joined as Assistant Secretary, the Board had grown from a very small beginning to 68 employees and members with an annual budget of $744,000. Now the number of Board members is more than double what it was then and the staff has grown sixfold. The budget today is some $25 million.

Initially the Board was accommodated on less than two floors of an apartment building, the Colonel By Towers on Bronson Avenue. Now, it occupies eleven floors of the Trebla Building, plus an office in Calgary. On more than one occasion it has only narrowly avoided being moved across the Ottawa River.

It is questionable whether, in the earliest days, anyone foresaw the Board growing as it has. In fact, there were many pressures to create and preserve a reputation for efficiency and economy of operation. Perhaps the most effective proponent for leanness and stringency was the Board's first Chairman, Ian McKinnon. But, in spite of the establishment by the Pearson government of a significant energy sector in the former Department of Mines and Technical Surveys, and the gradual transition of some functions and responsibilities away from the Board, the total responsibilities increased as the importance of the transportation and marketing of oil, gas and electricity grew. One indicative measure of this growth is the sixfold increase in the number of authorizations issued by the Board, on average, from its first five full years of existence to the last five.

Comparisons between the Secretariat of 1964 and 1984 are difficult because of the intervening re-organizations that have taken place. In the earlier era, the Secretariat consisted of the Board Secretary, the Assistant Secretary and two office secretaries. The Secretariat subsequently grew to encompass many of the duties now performed by the Secretary, the Executive Director, and the Administrative Services Branch.

My two predecessors as Secretary (Warren Armstrong and Grey Hamilton) were appointed by the Governor in Council, as was done in my original appointment in 1966. Later, the NEB Act was amended to provide for the appointment of the Secretary to be made by the Civil Service Commission in order to remove the filling of this position from political influence.

Although progress has been characteristic of the industry, some things take longer than others. For example, at one of the earliest meetings I attended (in 1964), a representative of Westcoast Transmission appeared to acquaint the Board informally of his company's status and plans. One which he stressed was the intention to apply as soon as possible for a certificate to construct a natural gas pipeline to Vancouver Island. I note that the application was finally received in 1984.

Personal memories loom large as one looks back on two decades and recalls friendships established with people who are still making significant contributions to the energy sector in Canada or whose contributions in the past have not yet been sufficiently recognized: Ian McKinnon, Bob Howland, Doug Fraser, Lee Briggs, Jack Stabback, Neil Stewart, Bill Hopper, Bob Pfister, Bill Hogben, and Grant Richardson. Finally, there are the present members of the Board and staff with whom I enjoyed a close association.

My friends tell me that the Board is very busy now. I can assure you it was very busy then, too.

Secretaries of the Board

All formal communications with the National Energy Board flow through the Secretary. The five people who have filled the position over the years have, thus, become widely known in the industries that we regulate. As a reminder, we include here a list of those who have held this office.

G. Warren Armstrong
1959-1962

Grey Hamilton
1962-1965

Robert A. Stead
1965-1976

Brian H. Whittle
1976-1980

Geoffrey Yorke Slader
1980-Present

A Secretariat Officer signs an order on behalf of the Secretary of the Board (1983).

The Directors

The strength of any organization is its people. The Board is ably served by a staff of advisors with extensive experience in different fields of energy and drawn from various professions and occupations. They include lawyers, engineers, geologists, environmentalists, accountants, economists, computer scientists, librarians and administrators.

Over the years the enlarged mandate of the Board and the marked increase of its regulatory duties have required considerable expansion of the staff. We have been fortunate in being able to attract and retain employees of the highest calibre.

The present staff numbers some 450 and is organized into a number of branches, each headed by a director. During the Board's first 25 years, seven branch directors made the transition to temporary or permanent Board Member.

A listing of the directors of the Board as of mid-1984 follows.

R. St. G. Stephens
Executive Director

G. Yorke Slader
Secretary

K.W. Vollman
Director General, Energy Studies

P.L. Miles
Director, Economics Branch

E.S. Bell
Director, Electric Power Branch

W.A. Hiles
Director,
Energy Supply Branch

D.D. Epp
Director, Financial
Regulatory Branch

S.R. Ironstone
Director, Gas Branch

F.H. Lamar, Q.C.
General Counsel, Law Branch

P.G. Scotchmer
Director, Oil Branch

T.S. Shwed
Director, Pipelines Branch
(Retired 21 September 1984)

J.S. Klenavic
Director, Projects and Plans

D. Emmens
Director, Systems
Development Branch

Engineers in the Pipelines Branch examine an application to ensure that it includes the information needed before a public hearing. Left to right: Bruce Clarida, Stan Shwed (1983).

The Board at Play

"All work and no play makes Jack a dull boy!" Certainly there is no dullness around the NEB, and our interests are by no means confined to the energy forms we regulate.

The Board has an active recreation association that regularly sponsors a number of social events every year. These include an annual Christmas dinner-dance, a golf tournament, and a picnic. There is an NEB baseball club and a bowling league.

The photographs that follow have been chosen to show some of our social activities over the last 25 years. We hope that they also demonstrate, in the public interest, that the regulators themselves are, after all, human!

We trust that you will find the pictures interesting and some even amusing. Perhaps, in glancing through them, you may recall old friends and recognize faces long since forgotten.

1963 - Skit presented by Board Staff at New Year's office party.

1965 - Christmas lunch at the Board. Left to right: Carl Von Ensiedel, Lou Ayres, Jack Lazarus, Bruce Ball, and George Ironmonger.

1966 - Left to right: Arleeta Heenan, Jean Burns, Helen McAlvanah, and Pat Skelton.

1968 - Foreground: Ian McKinnon and Bernard Leaky.
Background: Rick Mallett, Muriel Boulanger.

1968 - Mr. and Mrs. Ian McKinnon at his retirement party.

1979 - The Board's baseball team.

1982 - At the NEB annual picnic.

1982 - Board picnics are family outings and children share in the play.

1983 - The eleven present Board Members and one former Chairman.

Left to right: Jacques Trudel, Boyd Gilmour, Geoffrey Edge, Jack Hardie, Robert Howland, Ralph Brooks, Jacques Farmer, Byron Horner, Livia Thur, William Stewart, Digby Hunt and Jack Jenkins.

1984 - At the NEB Annual Golf Tournament.

1984 - Jack Jenkins, who has been with the Board since its creation, reminisces with Verna MacLean who was also one of the first employees and who retired last July.

T.-N. poursuit sa bataille contre Hydro devant l'Office national de l'énergie

Ce n'est que demain matin que l'on saura si Hydro-Québec pourra faire entendre sa requête visant à obtenir un permis d'exportation d'électricité vers les États de la Nouvelle-Angleterre, un contrat de $5 milliards s'échelonnant sur onze ans. La Newfoundland and Labrador Hydro (NLH) tente en effet d'obtenir un ajournement des audiences de l'Office national de l'énergie (ONÉ); souhaitant bloquer ces demandes d'exportation pour obtenir elle-même une plus grande partie de l'électricité produite aux Chutes Churchill, au Labrador.

FRANCINE OSBORNE

Hier à Montréal, l'ONÉ a entendu l'avocat d'Hydro-Québec, Me Nicole Lemieux, ainsi que le représentant de la Newfoundland and Labrador Hydro (NLH), Me Noel Clarke, débattre des questions en bonne partie techniques. La société terreneuvienne veut retarder les audiences concernant l'exportation d'électricité au New England Power Pool (Nepool) tant que la Cour d'appel fédérale ne se sera pas prononcée sur sa requête…

…

dérale décidera le 4 juin prochain si elle entend l'appel. NLH estime que l'Office a outrepassé sa juridiction et n'a pas respecté la loi en octroyant un tel permis d'exportation à Hydro-Québec.

Terre-Neuve estime qu'Hydro ne devrait pas être autorisée à exporter de l'électricité tant que les besoins …

chill refait surface et est au coeur du litige entre Hydro et la NLH. La Cour suprême du Canada a donné raison à Hydro-Québec récemment et déclaré inconstitutionnelle la loi expropriant les installations des Chutes Churchill.

Terre-Neuve fait valoir, devant l'ONÉ, que son réseau est interconnecté avec celui d'Hydro-Québec à cause de la centrale des Chutes Churchill et qu'en tant que réseau interconnecté, elle devrait d'abord se voir offrir l'électricité …

NEB hears estimates by Quebec

MONTREAL (CP) — Hydro-Quebec will pay New York … $90-million for Churchill Falls power in … 1990 and earn $2.8-billion … by exporting it to the United States, a National Energy Board hearing has been told. …

NEB will not change criteria for heavy oil export licences

THE GLOBE AND MAIL, WEDNESDAY, JUNE 22, 1983

REPORT ON CANADA

Oil exports approved by NEB

CALGARY (DJ) — The National Energy Board has approved applications by Suncor Inc. of Toronto and Dome Petroleum Ltd. of Calgary to export a total of 15,000 barrels of light crude oil daily to the United States between April and December, sources say.

The approvals are the first since the federal Government announced last …

U.S. presses Canada to lower gas export price

NEB predicts big increase in pipeline costs

Gaz naturel: feu vert aux exportations de $70 m…

SELON L'OFFICE NATIONAL DE L'ÉNERGIE

Aucune raison pour retarder l'acheminement du gaz naturel

NEB objects to changes for hearings

Point Lepreau decision reduces risk

Foothills asks NEB for Alaska pipeline costs

Money could be recovered through export gas rates

Edge takes on hot seat at National Energy Board

NEB approves record in natural gas exports

By JENNIFER LEWINGTON
Globe and Mail Reporter

Energy board approves huge natural gas exports

By Keri Sweetman
Citizen staff writer

Massive new natural gas exports, worth a potential $70 billion over the next 15 years, have been approved by Canada's National Energy Board.

The landmark decision, announced Thursday, will allow the volume of natural gas flowing out of Canada to double and, for the first time, clears the way for exports to a country other than the United States.

Issuing its first new natural gas licences since 1979, the board has authorized the export of an additional 11.5 trillion cubic feet of western Canadian natural gas, 20 per cent of which will go to Japan.

The remaining 80 per cent, or 9.3 trillion cubic feet, will be available for export to the United States, mostly to markets in the Midwest and Northeast.

The extra exports were made possible because the board relaxed its formula used to calculate Canada's natural gas surplus last spring.

The decision, which results from eight months of hearings last year, was immediately labelled "dangerous" by the federal New Democratic party.

It must still be approved by cabinet.

Board chairman Geoffrey Edge predicted that if all the exports go ahead, the net benefit to Canada (after construction and other …) will be about $17 billion, … creation of thousands of jobs … ing pipelines and facilities.

However, whether those … all realized depends on the … of negotiations this winter … United States, which … the federal government … price of Canadian … risk losing its major …

(U.S., page 10)

Energy board approves huge natural gas

Canada

25 Years 1959 - 1984
National Energy Board